JACOBS

TES IV

JACOBS ENGINEERING GROUP INC.
ENVIRONMENTAL SYSTEMS DIVISION

IN ASSOCIATION WITH:
TETRA TECH
METCALF & EDDY
ICAIR LIFE SYSTEMS
KELLOGG CORPORATION
GEO/RESOURCE CONSULTANTS
BATTELLE PACIFIC NORTHWEST LABORATORIES
DEVELOPMENT PLANNING AND RESEARCH ASSOCIATES

ENVIRONMENTAL PROTECTION AGENCY

TECHNICAL ENFORCEMENT SUPPORT
AT
HAZARDOUS WASTE SITES

TES IV
CONTRACT NO. 68-01-7351
EPA WORK ASSIGNMENT NO. R07018

RCRA LAND DISPOSAL RESTRICTIONS INSPECTION
AT
STEELCOTE MANUFACTURING COMPANY FACILITY
MOD006275036

JACOBS ENGINEERING GROUP INC.
JACOBS WORK ASSIGNMENT NO. O5C01700

JUNE 30, 1989

TABLE OF CONTENTS

ATTACHMENTS

RCRA LAND DISPOSAL RESTRICTIONS REPORT

PREPARED FOR

U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
WASTE MANAGEMENT DIVISION
COMPLIANCE RESPONSE BRANCH

Facility:	Steelcote Manufacturing Company 3418 Gratoit Street St. Louis, Missouri, 63103
EPA ID Number:	MOD 006275036
Date of Inspection:	June 9, 1989
Jacobs Representatives:	Greg C. Uetrecht, Environmental Engineer Laurie M. Smith, Industrial Hygienist
Facility Representative:	James S. Moore, Plant Manager
Report Prepared By:	Greg C. Uetrecht
Report Date:	June 30, 1989

RCRA LAND DISPOSAL RESTRICTIONS INSPECTION
AT STEELCOTE MANUFACTURING COMPANY FACILITY
ST. LOUIS, MISSOURI
REGION VII WORK ASSIGNMENT NO. R07018

ABSTRACT

EPA Hazardous Waste Code	Hazardous Waste Stream	Disposal Facility	Disposal Method
F003/F005	Xylene, Toulene, Methyl ethyl ketone still bottoms	American Resource Recovery Corp., Memphis, TN	Treatment/ Incineration
F003/F005	Xylene, Toulene, Methyl ethyl ketone	On-site distillation	Reclamation

Steelcote was cited for the following violations:

40 CFR 268.7(a)(1) - Each manifest did not include notifications of the appropriate treatment standards.

40 CFR 268.7(a)(1) and (2) - Drums are unmarked and not labelled for F003 and F005.

BACKGROUND

Nature and History of Operation

Steelcote Manufacturing Company has been located at 3418 Gratoit Street in St. Louis, Missouri for over eighty years. Steelcote first began its business in formulating specialty coatings and trade-sale paints for the house paint market.

Currently, Steelcote produces industrial and architectural coatings for retail sales. The work force at Steelcote consists of fourteen people. At most, four people may be involved with the management of handling the hazardous wastes generated on-site. Steelcote's plant manager oversees this task.

Mr. Moore stated during the Land Disposal Restrictions (LDR) inspection of June 9, 1989 that Steelcote generates most of its hazardous wastes during clean ups. (Refer to photographs No. 1 and 2)

Steelcote is a full-quantity generator of hazardous wastes. Wastes are F003 and F005, based on an analyses of the reclaimed solvents (Attachment 1). No analyses of the spent solvents or still bottom wastes were available at the time of the LDR inspection. Mr. Moore stated that a waste analysis was currently being prepared for the F003 and F005 still bottom wastes by American Resource Recovery Corp. in Memphis, TN. Steelcote had recently contracted with American Resource Recovery to treat the still bottom wastes. To date, all still bottoms had been sent to Earth Industrial Waste Management Inc.

All the spent solvents used in cleaning the ball mills, roller mills, mix tanks, wash drums and paint valves are placed in 55-gallon drums. These drums are taken to the solvent distillation unit

(Photographs 5,6,7 and 8) in another area of the Steelcote. The distillation unit is approximately one year old. The F-solvent wastes in the drums are pumped into the solvent distillation unit. The recycled solvent is collected from a condenser pump in 55-gallon drums. An analysis of the recycled solvent is found in Attachment 1. The solvent distillation unit is cleaned out once a week. The F-solvent still bottoms are stored in drums awaiting off site shipment up to 150 days, according to Mr. Moore. He said that Steelcote had a verbal agreement with the State of Missouri that they could store hazardous wastes up to 150 days as long as a still was installed on site. Documentation of this agreement was not available to the inspectors.

Mr. Moore stated that another very small waste stream generated by Steelcote is returned products and aged inventory that could not be used (Photographs No. 14 and 15). This waste stream is placed into 55-gallon drums and stored for off site treatment. During the LDR inspection, the length of storage of this returned product was unknown to Mr. Moore. He stated that he keeps a notebook of accumulation dates; however, this notebook was not available to the LDR inspectors upon request. This waste stream, according to Mr. Moore, is mixed with the still bottoms. In the past, three (3) 55 gallon drums of F003 waste were rejected by the treatment facility because they also contained polychlorinated biphenyls (PCBs). These three (3) drums were still being stored in the area of the distillation unit at the time of the LDR inspection (Photograph 13, and Issue Section).

INVESTIGATION

Record Review

Manifests/ LDR Notifications/Waste Analyses

Steelcote's most recent hazardous waste shipment was sent to Earth Industrial Waste Management, Inc. in Millington, TN on April 3, 1989. Eight (8) drums of waste F003 and F005 were shipped. Steelcote did not attach a notification indicating that the F003 and F005 wastes were exceeding the treatment standards for methyl ethyl ketone (MEK), methyl isobutyl ketone (MIK), toluene, and xylene. Steelcote also sent F003 and F005 wastes to American Resource Recovery Corp. on October 6, 1988 without notification of F-solvent treatment standards. Likewise, on September 20, 1988, Steelcote shipped F003 waste to Reclaimed Energy Company, Inc. with an F-solvent notification form. However, the treatment standards were not listed for Steelcote's F003 waste. This manifest and waste was rejected by Reclaimed Energy Company, Inc. and the shipment was returned to Steelcote. This waste, noted on the manifest, was still stored at the facility during the LDR inspection. On September 15, 1988, Steelcote shipped hazardous wastes called "D001", to Rineco Chemical Industries. Mr. Moore could not answer why the waste was identified as D001, and he stated that all Steelcote's hazardous wastes were F003 and F005.

SITE INSPECTION

At 8:36 am, on June 9, 1989, the LDR inspectors met Mr. James S. Moore, the Plant Manager of Steelcote. A brief meeting provided Mr. Moore with information and background on the purpose of the LDR inspection. Mr. Moore stated that all the waste streams came from clean up except a small percent consisting of old stock and customer returns.

At 8:55 am, a plant tour was conducted starting on the second floor of Steelcote. Photographs were taken to show areas of concern (Attachment No. 2). The F003 and F005 wastes were generated in cleaning drums, steel balls from the mills, paint mixing tanks, and roller mills. This waste stream was placed in 55-gallon drums and sent over to the solvent distillation unit area.

At 9:12 am, Mr. Moore led the LDR inspectors to his office to review manifests and waste analyses. Mr. Moore was requested to provide all manifests from July 1988 to the present. Four treatment facilities have received F003, F005 and D001 wastes from Steelcote during this period. Some of the manifests had no F-solvent notifications, or the notifications were incomplete.

Mr. Moore stated that a local laboratory had completed the analysis of the hazardous waste generated at Steelcote; however, this analysis was found to be of Steelcote's reclaimed solvent, not the F003 and F005 generated wastes or still bottom wastes (Attachment No. 1).

The plant tour continued at 9:32 am in the solvent distillation unit area. Thirty-five (35) 55-gallon drums were noted in this area. Mr. Moore said that five (5) drums were full of waste solvents awaiting reclamation in the still; however, empty drums were not segregated from full ones. None of the drums were labelled appropriately as a hazardous waste (Photographs No. 6 and 7).

The solvent distillation unit was Progressive Recovery Inc. Model SC. The typical distillation time according to Mr. Moore was about four (4) hours. A load of 130 gallons of F003 and F005 clean up waste could be sent through the still in one day. The still pulls off volatile constituents at temperatures up to 320 degrees Fahrenheit. The recycled solvent is drummed for use in Steelcote's plant. The still bottoms are collected and shipped out in full 55-gallon drums. Mr. Moore stated that storage is about 130 days. It was unclear on how long the F003 and the F005 clean up wastes were stored before being distilled. Seventeen (17) drums were waiting near the still to be recycled (Photographs No. 8). These drums were not labelled. In this area also were three (3) drums of still bottoms and solvent waste mixed with PCBs. Mr. Moore stated that the PCBs came from old stock which contained Aroclors 1544 and 1240, although these are not the correct numbers for PCB Aroclors. The concentration of PCBs ranged from 7 to 26 mg/L.

In the Steelcote basement, the RCRA storage area contained twenty-six (26) 55-gallon drums, all of which were unlabelled. Mr. Moore stated that the drums contained aged inventory. One drum was noted to be leaking and the release was outside of the storage area. Mr. Moore was asked when the labels were placed on Steelcote's drums. He stated that this occurred when the drums were full; however, no labels were noted. The plant tour was completed at 10:00am.

The inspectors began reviewing Form B of the checklist-Treatment, Storage and Disposal with Mr. Moore, who then requested that he be allowed to consult with legal counsel prior to completion of the checklist at a later date. Mr. Moore stated that the facility will pay any monetary fees to avoid obtaining a permit to become a treatment, storage, and disposal facility. The inspectors then completed the remainder of the checklist for generator status only. Steelcote was issued a Notice of Violation prior to conclusion of the inspection.

ISSUES

1. Mr. Moore stated that to his knowledge Steelcote had an agreement with the state of Missouri Department of Natural Resources which allowed the storage of the F003 and F005 wastes up to 150 days if a still was installed. Also, Mr. Moore stated that accumulation dates for this waste were kept in a notebook. No documentation on either of these statements was available at the time of the LDR inspection. It remains unclear, without this documentation, the length of time the F003 and F005 clean up wastes were stored before being recycled.

   From the manifest document No.00018, it was clear that a drum of F003/F005 waste with an accumulation date of January 1, 1989 was not shipped off site until April 3, 1989. This was greater than the 90 day storage allowed. Also, in manifest document No. 00014, the F003/PCB wastes were returned to Steelcote approximately during the first week of October 1988; however, these drums were still being stored on site at the time of the LDR inspection. It therefore

appears that Steelcote is in violation of the generator requirements for storage and are subject to 40 CFR 265, 244 and 270..

2. Steelcote relies solely on the treatment facilities for their analyses of Steelcote's F-solvent wastes. Mr. Moore did not have these analyses for review at the time of the LDR inspection. Steelcote believes that they are correctly determining the appropriate treatability group for the F-solvent wastes; however, during the LDR inspection there was no verification of this statement. This was also true for verification of the California List Wastes.

OTHER ISSUES

General housekeeping is a major problem at Steelcote. Many empty product and hazardous waste drums were stored together. Most of the drums were without labels. Stains were noticed on the floor. A drum was noted leaking in the basement RCRA storage area.

Steelcote had three underground storage tanks. Two tanks had been removed. Xylene (product) and fuel oil were being stored according to Mr. Moore in the same area as the cleanup, waste solvent outside of the still. None of the drums were labelled.

LISTING OF POTENTIAL VIOLATIONS

At the end of the LDR inspection, the following violations were cited specific to the LDR requirements.

40 CFR 268.7 (a)(1)

- Steelcote, as a generator of F003 and F005 wastes, failed to notify the treatment facility in writing of the appropriate treatment standards set forth in 40 CFR 261 for each shipment of F-solvent wastes sent.

40 CFR 268.50 (a)(1) and (2)

- Steelcote had been storing F-solvent wastes for greater than 90 days without each container (drum) clearly marked to identify its contents and date each period of accumulation began.

Upon completion of this report, the following potential violations were noted:

40 CFR 268.7 (a)(4)

- Steelcote is using knowledge of reclaimed solvent composition solely for making a determination of the appropriate treatment standards and classifications of the F-solvent wastes. The analysis which Steelcote presented to the inspectors as applying to the spent solvents and still bottoms was applicable only to the reclaimed solvents (Attachment No. 1). Steelcote should run analyses on the spent solvent-clean up waste; spent solvent-still bottoms; and the aged inventory waste, all supporting data to make this determination must be maintained on-site in Steelcote's files. Steelcote does not appear at present to be adequately characterizing their waste streams.

40 CFR 262.34 (a)(2) and (3)

- Steelcote failed to clearly mark the date when each period of accumulation began so that it was visible for inspection on each container. Also, while the waste is being accumulated on-site, each container must be clearly marked "Hazardous Waste".

40 CFR 262.34 (a)(4)

- Steelcote must comply with the requirements for owners and operators in Subparts C and D in 40 CFR Part 265 and with Section 265.16. training of personnel

40 CFR 262.34 (b)

- Steelcote, as a generator which accumulates hazardous waste for more than 90 days, is an operator of a storage facility and is subject to the requirements of 40 CFR Parts 264 and 265, and the permit requirements of 40 CFR 270.

ATTACHMENTS

1. Steelcote Manufacturing Company Facility Records
2. Steelcote Manufacturing Company - Photographs
3. Land Disposal Restrictions Checklist
4. Notice of Violation, Confidential Business Information Form and Receipt of Documents

ATTACHMENT 1
STEELCOTE MANUFACTURING COMPANY
FACILITY RECORDS

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

1

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. M O D 0 0 6 2 7 5 0 3 6 0 | Manifest Document No. 0 1 3 | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Steelcote Manufacturing Company
3418 Gratiot St. Louis, MO 63103
4. Generator's Phone (314) 771-8053

A. State Manifest Document Number: AR-280229
B. State Generator's ID: MO. 001157

5. Transporter 1 Company Name: Trans Truck
6. US EPA ID Number: I L D 0 9 3 7 4 6 0 3 0
C. State Transporter's ID: H281/PC966
D. Transporter's Phone: ~~(618)398-6753~~

7. Transporter 2 Company Name
8. US EPA ID Number
E. State Transporter's ID
F. Transporter's Phone

9. Designated Facility Name and Site Address
✓ Rineco Chemical Industries
1007 Vulcan Road-Haskell
Benton, AR 72015
10. US EPA ID Number: A R D 9 8 1 0 5 7 8 7 0
G. State Facility's ID: N/A
H. Facility's Phone: 501-778-9089

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Paint Waste ~~XXXXXXX~~ Related Material Flammable Liquid NA 1263	3	D M	1 5 0	GAL	D001
b.					
c.					
d.					

RECEIVED SEP 29 1988

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

if no alternate TSDF, return to generator — James Moore (314) 771-8053

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
James S. Moore	James S. Moore	0 9	1 2	8 8

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
DAVID Johnson	David Johnson	09	13	88

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
BLAKE TOLLESON	Blake Tolleson	10	11	88

EPA Form 8700-22 (Rev. 9-86) Previous edition is obsolete.

NOTICE: THE ORIGINAL AND NOT LESS THAN TWO (2) COPIES MUST MOVE WITH THE HAZARDOUS WASTE SHIPMENT. ONCE DELIVERED, THE TREAT-

STATE OF ARKANSAS
Department of Pollution Control and Ecology
P. O. Box 9583 Little Rock, Arkansas 72219
Telephone 501-562-7444

6

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. H P P P 0 6 2 7 5 0 3 6 — Manifest Document No.

2. Page 1 of 1 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
Steelcote Manufacturing Company
3418 Gratiot St. Louis, MO 63103

A. State Manifest Document Number AR- 280229

B. State Generator's ID

4. Generator's Phone (314) 771-8053

5. Transporter 1 Company Name: Trans Truck

6. US EPA ID Number: I L D 9 3 7 4 6 0 3 0

C. State Transporter's ID: R281/PC966

D. Transporter's Phone: (618)398-6753

7. Transporter 2 Company Name

8. US EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Rineco Chemical Industries
1907 Pelican Road-Haskell
Haskell, AR 72015

10. US EPA ID Number: A R D 0 8 1 0 5 7 8 7 0

G. State Facility's ID: N/A

H. Facility's Phone: 501-779-9089

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. Paint Waste Paint Related Material Flammable Liquid	3	DM	150	GAL	D001
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

if no alternate TSDF, return to generator — James Moore (314) 771-8053

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and Arkansas state regulations.
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GENERATOR

Printed/Typed Name: James S. Moore — Signature — Month 0 9 Day 1 2 Year 8 8

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.
Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 9-86) Previous edition is obsolete.

GENERATOR INITIAL COPY

STATE OF ILLINOIS

ENVIRONMENTAL PROTECTION AGENCY · DIVISION OF LAND POLLUTION CONTROL

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62794-9276 (217) 782-6761
P.O. BOX 19276

IL532-0610
LPC 62 8/81

5

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UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.: MOD006315036 — Manifest Document No.: 0016

2. Page 1 of 1

Information in the shaded areas is not required by Federal law, but is required by Illinois law.

A. Illinois Manifest Document Number: IL **2107598**

3. Generator's Name and Mailing Address: STEELCOTE MANUFACTURING COMPANY, 3418 GRATIOT, ST. LOUIS, MO 63103

B. Illinois Generator's ID: 1 2 9 1 1 1 5 1 5 9

4. Generator's Phone (314) 771-2053

5. Transporter 1 Company Name: SUPERIOR EQUIPMENT

6. US EPA ID Number: [illegible]

C. Illinois Transporter's ID

D. ( ) Transporter's Phone

7. Transporter 2 Company Name

8. US EPA ID Number

E. Illinois Transporter's ID

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address: CLAYTON CHEMICAL CO, 1 MOBILE STREET, SAUGET, IL 62201

10. US EPA ID Number: ILD066918327

G. Illinois Facility's ID: 1 1 6 1 1 1 1 1 1 9 9 4

H. Facility's Phone: (618) 271-0161

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. WASTE PAINT RELATED MATERIAL FLAMMABLE LIQUID	0 0 1	T M	1,00	1	EPA HW Number XX F003; Authorization Number [illegible]
b.					EPA HW Number XX; Authorization Number
c.					EPA HW Number XX; Authorization Number
d.					EPA HW Number XX; Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above In Item #14

1 = Gallons 2 = Cubic Yards

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR,** if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
JAMES S. MOORE	J. S. Moore	[illegible]

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Mike Hamang	Mike Hamang	09 15 88

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name	Signature	Date (Month Day Year)

...ILLINOIS: 217 / 782-3637 *24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS* OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-2675

...RIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

GENERATOR COPY — PART 1-DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

IEPA COPY - PART 5

STATE OF ILLINOIS ENVIRONMENTAL PROTECTION AGENCY · DIVISION OF LAND POLLUTION CONTROL

2200 CHURCHILL ROAD, SPRINGFIELD, ILLINOIS 62794-9276 (217) 782-6761
P.O. BOX 19276

IL532-0610
LPC 62 8/81

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) **EPA Form 8700-22 (Rev. 9-86)** Form Approved. OMB No. 2050-0039, Expires 9-30-89

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of 1 | Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

A. Illinois Manifest Document Number: IL 2107598

B. Illinois Generator's ID

5. Transporter 1 Company Name | 6. US EPA ID Number

C. Illinois Transporter's ID

D. ( ) Transporter's Phone

7. Transporter 2 Company Name | 8. US EPA ID Number

E. Illinois Transporter's ID

F. ( ) Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number

G. Illinois Facility's ID

H. Facility's Phone ( )

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.				1	EPA HW Number XX / Authorization Number
b.					EPA HW Number XX / Authorization Number
c.					EPA HW Number XX / Authorization Number
d.					EPA HW Number XX / Authorization Number

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above In Item #14
1 = Gallons 2 = Cubic Yards

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; **OR**, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name: JAMES S. MOORE | Signature | Date: Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: Mike Hanson | Signature | Date: Month Day Year 09 11 95

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Date: Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name | Signature | Date: Month Day Year

24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS
ILLINOIS: 217 / 782-3637 OUTSIDE ILLINOIS: 800 / 424-8802 or 202 / 426-2675

DISTRIBUTION: PART - 1 GENERATOR PART - 2 IEPA PART - 3 FACILITY PART - 4 TRANSPORTER PART - 5 IEPA PART - 6 GENERATOR

REV-

GENERATOR COPY — PART 1-DO NOT REMOVE PART 1 FROM SET UNTIL COMPLETED.

This Agency is authorized to require, pursuant to Illinois Revised Statutes, Chapter 111½ Section 21, that this information be submitted to the Agency. Failure to provide the information may result in a civil penalty against the owner or operator of not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Management Center.

GENERATOR COPY - PART 6

SIGNATURE AND INFORMATION *MUST* BE LEGIBLE ON ALL COPIES

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
P.O. Box 7035
Indianapolis, IN 46207-7035

442-K
443-K 9-22

PLEASE PRINT OR TYPE (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law, but items D, F, H and I are required by State law.
M·O·D·0·0·6·2·7·5·0·3·6	0·0·0·1·4		

3. Generator's Name and Mailing Address
Steelcote Manufacturing
3418 Gratiot
St. Louis, MO. 63103

4. Generator's Phone (314) 771-8053

A. State Manifest Document Number INA 0239265

B. State Generator's ID 001157

5. Transporter 1 Company Name	6. Use EPA ID Number	C. State Transporter's ID	D. Transporter's Phone
Superior Solvents & Chemicals, Inc	M·O·D·0·7·9·9·1·0·6·0·0	H 1115	314-621-2600

7. Transporter 2 Company Name	8. Use EPA ID Number	E. State Transporter's ID	F. Transporter's Phone
	. . . . .		

9. Designated Facility Name and Site Address	10. Use EPA ID Number	G. State Facility's ID	H. Facility's Phone
✓ Reclaimed Energy Co. Inc. 1500 Western Ave., Connersville, IN. 47331	I·N·D·0·0·0·7·8·0·4·0·1		317-827-0772

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol.	I. Waste No.
a. Waste Paint Related Material Flammable Liquid UN1263 - Heavy	0 0 1	D M	0·0·055	G	F003
b. Waste Paint Related Material Flammable Liquid UN1263 - Light	0 0 1	D M	0 0 0 5 5	G	F003
c.	. .	.	. . . .		
d.	. .	.	. . . .		

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

Keep away from heat, sparks, and open flames. Excessive inhaling of vapors may be harmful. Prolonged contact with skin may be harmful.
If not deliverable, return to generator in 10 days. InD#1056; Mo#H-1115

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

GENERATOR

Printed/Typed Name	Signature	Date Month	Day	Year
JAMES S. MOORE	James S. Moore	0 9	2 0	8 8

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
JAMES FITZGERALD	James Fitzgerald	0 9	2 0	8 8

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year
		.	.	.

FACILITY

19. Discrepancy Indication Space DRUMS BEING REJECTED AND RETURNED TO GENERATOR DUE TO MATERIAL BEING OFF SPECIFICATION. GENERATOR NOTIFIED.

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted Item 19.

Printed/Typed Name	Signature	Date Month	Day	Year
		.	.	.

INA 0239265

EPA Form 8700-22 (Rev. 9-86) Previous editions are obsolete.

DISTRIBUTION: PAGE 1 (white) TSD MAIL TO GENERATOR
PAGE 2 (goldenrod) GENERATOR MAIL TO GENERATOR STATE

PAGE 5 (light blue) TSD COPY
PAGE 6 (green) GENERATOR COPY

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
P.O. Box 7035
Indianapolis, IN 46207-7035

PLEASE PRINT OR TYPE *(Form designed for use on elite (12-pitch) typewriter.)* *Form Approved. OMB No. 2050-0039. Expires 9-30-88*

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. M.O.D.0.0.6.2.7.5.0.3.6	Manifest Document No. 0 0 0 1 4	2. Page 1 of 1	Information in the shaded areas is not required by Federal law, but items D, F, H and I are required by State law.

3. Generator's Name and Mailing Address
Steelcote Manufacturing
3418 Gratiot
St. Louis, MO. 63103

4. Generator's Phone (314) 771-8053

A. State Manifest Document Number: INA 0239265
B. State Generator's ID: 001157
C. State Transporter's ID: H 1115
D. Transporter's Phone: 314-621-2600
E. State Transporter's ID:
F. Transporter's Phone:
G. State Facility's ID:
H. Facility's Phone: 317-827-0772

5. Transporter 1 Company Name: Superior Solvents & Chemicals, Inc
6. Use EPA ID Number: M.O.D.0.7.9.9.1.0.6.0.0
7. Transporter 2 Company Name:
8. Use EPA ID Number:
9. Designated Facility Name and Site Address: Reclaimed Energy Co. Inc.
1500 Western Ave.,
Connersville, IN. 47331
10. Use EPA ID Number: I.N.D.0.0.0.7.8.0.4.0.1

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol.	I. Waste No.
a. Waste Paint Related Material Flammable Liquid UN1263 - Heavy	0 0 1	D M	0 0 1 1 0	G	F003
b. Waste Paint Related Material Flammable Liquid UN1263 - Light	0 0 1				
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Keep away from heat, sparks, and open flames. Excessive inhaling of vapors may be harmful. Prolonged contact with skin may be harmful.
If not deliverable, return to generator in 10 days. InD#1056; Mo#H-1115

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable International and national government regulations.

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GENERATOR

Printed/Typed Name	Signature	Date Month	Day	Year
JAMES S. MOORE	James S Moore	0 9	2 0	8 8

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date Month	Day	Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted Item 19.

Printed/Typed Name	Signature	Date Month	Day	Year

EPA Form 8700-22 (Rev. 9-86)
Previous editions are obsolete.
State Form 11865

DISTRIBUTION:
PAGE 1 (white) TSD MAIL TO GENERATOR
PAGE 2 (goldenrod) GENERATOR MAIL TO GENERATOR STATE
PAGE 3 (light green) TSD MAIL TO TSD STATE
PAGE 4 (light pink) OUT OF STATE GENERATOR/TSD MAIL TO IDEM
PAGE 5 (light blue) TSD COPY
PAGE 6 (canary) GENERATOR COPY
PAGE 7 (white) TRANSPORTER 1 COPY
PAGE 8 (white) TRANSPORTER 2 COPY

In case of a spill call Indiana Office of Environmental Response at 317/243-5155 (day), or 317/633-0144 (night) and the National Response Center at 800/424-8802 or 202/426-2675.

INA 0239265

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF SOLID AND HAZARDOUS WASTE MANAGEMENT
P.O. Box 7035
Indianapolis, IN 46207-7035

PLEASE PRINT OR TYPE (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039. Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. M.O.D.0.0.6.2.7.5.0.3.6 | Manifest Document No. 0.0.0.1.4

2. Page 1 of 1 | Information in the shaded areas is not required by Federal law, but items D, F, H and I are required by State law.

3. Generator's Name and Mailing Address
Steelcote Manufacturing
3418 Gratiot
St. Louis, MO. 63103

4. Generator's Phone (314) 771-8053

A. State Manifest Document Number: INA 0239265

B. State Generator's ID: 001157

5. Transporter 1 Company Name: Superior Solvents & Chemicals, Inc

6. Use EPA ID Number: M.O.D.0.7.9.9.1.0.6.0.0

C. State Transporter's ID: H 1115

D. Transporter's Phone: 314-621-2600

7. Transporter 2 Company Name

8. Use EPA ID Number

E. State Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Reclaimed Energy Co. Inc.
1500 Western Ave.,
Connersville, IN. 47331

10. Use EPA ID Number: I.N.D.0.0.0.7.8.0.4.0.1

G. State Facility's ID

H. Facility's Phone: 317-827-0772

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol.	I. Waste No.
a. Waste Paint Related Material Flammable Liquid UN1263 - Heavy	001	DM	00110	G	F003
b. Waste Paint Related Material Flammable Liquid UN1263 - Light	001				
c.					
d.					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information
Keep away from heat, sparks, and open flames. Excessive inhaling of vapors may be harmful. Prolonged contact with skin may be harmful.
If not deliverable, return to generator in 10 days. In0#1056; Mo#H-1115

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

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GENERATOR

Printed/Typed Name | Signature | Date Month Day Year: 09 20 86

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials
JAMES R. MOORE
Printed/Typed Name | Signature | Date Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name | Signature | Date Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted Item 19.
Printed/Typed Name | Signature | Date Month Day Year

EPA Form 8700-22 (Rev. 9-86)
ious editions are obsolete.
e Form 11865

DISTRIBUTION:
PAGE 1 (white) TSD MAIL TO GENERATOR
PAGE 2 (goldenrod) GENERATOR MAIL TO GENERATOR STATE
PAGE 3 (light green) TSD MAIL TO TSD STATE
PAGE 4 (light pink) OUT OF STATE GENERATOR/TSD MAIL TO IDEM
PAGE 5 (light blue) TSD COPY
PAGE 6 (canary) GENERATOR COPY
PAGE 7 (white) TRANSPORTER 1 COPY
PAGE 8 (white) TRANSPORTER 2 COPY

In case of a spill call Indiana Office of Environmental Response at 317/243-5155 (day), or 317/633-0144 (night) and the National Response Center at 800/424-8802 or 202/426-2675.

INA 0239265

GENERATOR NOTIFICATION
TO RECLAIMED ENERGY CO., INC.
OF WASTES RESTRICTED FROM LAND DISPOSAL

This notification is submitted in accordance with the Land Disposal Restrictions, under 40 CFR 268.7(a)(1). Generators of EPA Hazardous Waste Numbers F001 to F005 and/or "California List" (see Footnote) constituents above their prohibition levels must provide the following information with each shipment delivered to Reclaimed Energy Co., Inc.

1. Generator Name Steel Coat Mfg.
2. Waste Name Waste Paint Related Material
3. EPA Hazardous Waste Number(s): F001, F002, (F003), F004, F005 (Circle one or more)
4. Corresponding Solvent Treatment Standard and/or California List Prohibition Levels (See below).
5. Manifest number of this shipment: 00014
6. Waste analysis data (attach if different from Reclaimed Energy Co., Inc. analysis).

CORRESPONDING SOLVENT TREATMENT STANDARD & CALIFORNIA LIST PROHIBITION LEVELS

Instructions: For each constituent present in this waste or its extract, check the appropriate box in front of the treatment standard(s) or prohibition level(s) which apply.

Solvent Treatment Standards	(✓)	(mg/liter) Spent solvent wastes (Not for Wastewater)
Acetone		0.59
n-Butyl alcohol		5.0
Carbon disulfide		4.81
Carbon tetrachloride		0.96
Chlorobenzene		0.05
Cresols and cresylic acid		0.75
Cyclohexanone		0.75
1,2-Dichlorobenzene		0.125
Ethyl acetate		0.75
Ethyl benzene		0.053
Ethyl ether		0.75
Isobutanol		5.0
Methanol		0.75
Methylene chloride		0.96
Methylene chloride (from the pharamaceutical industry)		0.96
Methyl ethyl ketone		0.75
Methyl isobutyl ketone		0.33
Nitrobenzene		0.125
Pyridine		0.33
Tetrachloroethylene		0.05
Toluene		0.33
1,1,1-Trichloroethane		0.41
1,1,2-Trichloroethane		0.96
Trichloroethylene		0.091
Trichlorofluromethane		0.96
Xylene		0.15

California List Constituents	(✓)	Prohibition Levels Concentration (mg/L)
Cyanides		1,000
Arsenic		500
Cadmium		100
Chromium VI		500
Lead		500
Mercury		20
Nickel		134
Selenium		100
Thallium		130
Liquids with pH ≤ 2.0		---
Liquids with PCBs		50 ppm
Wastes containing HOCs *		1,000mg/kg

*Halogenated organic compounds.

(Example Chlorinated Florocarbons)

Footnote: The California List Constituent Prohibition levels apply nationally.

Form SW-2 (Revised 1/8/88)

3

INSTRUCTIONS FOR THE COMPLETION OF THIS FORM ARE ON A SEPARATE SHEET.

THIS DOCUMENT MUST BE USED FOR ALL MISSOURI-DESTINED SHIPMENTS.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Division of Environmental Quality
Waste Management Program
P.O. Box 176 Jefferson City, Missouri 65102
314-751-3176

HAZARDOUS WASTE MANIFEST

EMERGENCY RESPONSE
U.S. COAST GUARD
1-800-424-8802
CHEM TREC
1-800-424-9300
DEPT. OF NATURAL RESOURCES
314-634-2436

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039, Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. M O D 0 0 6 2 7 5 0 3 6 — Manifest Document No. 0 0 1 1 7

2. Page 1 of 1 — Information in the shaded areas is required by State law.

3. Generator's Name and Mailing Address
Steelcote Manufacturing Co.
3418 Gratiot Street St. Louis, Mo 63103

4. Generator's Phone (314) 771-0053

5. Transporter 1 Company Name
Envir-All, Inc.

6. US EPA ID Number M O D 9 8 1 7 4 4 0

7. Transporter 2 Company Name
Same

8. US EPA ID Number

9. Designated Facility Name and Site Address
American Resource Recovery Corp
901 E. Bodley
Memphis, Tn 38106

10. US EPA ID Number T N D 9 8 1 2 7 8 6 8 0

A. Missouri Manifest Document Number [redacted] 0 0 1 1 7

B. State Generator's ID "other"
"OG1157"

C. MO. Transporter's ID M-1645

D. Transporter's Phone 314-892-0907

E. MO. Transporter's ID

F. Transporter's Phone

G. State Facility's ID
N/A

H. Facility's Phone 901-774-2340

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers		13. Total Quantity	14. Unit Wt/Vol.	I. Waste No.
a. Waste Paint Related Material Flammable Liquid UN1263	0 3	D M	1 6 5	G	MO. Other F003-F005
b.					MO. Other
c.					MO. Other
d.					MO. Other

J. Additional Descriptions for Materials Listed Above	K. Handling Codes for Wastes Listed Above
a.	
b.	
c.	
d.	

15. Special Handling Instructions and Additional Information
If undeliverable return to generator. In event of spills, fire or other emergency it may be necessary to call N.R.C. 1-800-424-8802

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and applicable state regulations.
If I am a large quantity operator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method available to me that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
James S. Moore	James S. Moore	0 6	1 6	8 8

17. Transporter 1 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name	Signature	Month	Day	Year
Cheryl Kirkhoven	Cheryl Kirkhoven	0 6	1 6	8 8

18. Transporter 2 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name	Signature	Month	Day	Year

19. Discrepancy Indication Space 1

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Date

Printed/Typed Name	Signature	Month	Day	Year

G R A — S P O — I L

GENERATOR COPY — PART 6

IMPORTANT

SEE INSTRUCTIONS SHOULD PART 1 & 2 FAIL TO RETURN WITHIN 35 DAYS.

EPA Form 8700-22 (Rev. 9-86) MDNR-HWG 10 PREVIOUS EDITIONS ARE OBSOLETE

INSTRUCTIONS FOR THE COMPLETION OF THIS FORM ARE ON A SEPARATE SHEET.

THIS DOCUMENT MUST BE USED FOR ALL MISSOURI-DESTINED SHIPMENTS.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Division of Environmental Quality
Waste Management Program
P.O. Box 176 Jefferson City, Missouri 65102
314-751-3176

HAZARDOUS WASTE MANIFEST

EMERGENCY RESPONSE
U.S. COAST GUARD
1-800-424-8802
CHEM TREC
1-800-424-9300
DEPT. OF NATURAL RESOURCES
314-634-2436

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039, Expires 9-30-88

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No.

2. Page 1 of 1 | Information in the shaded areas is required by State law.

3. Generator's Name and Mailing Address
Delcote Manufacturing Co.
2415 Gratiot Street St. Louis, Mo 63103

4. Generator's Phone (314) 771-2053

A. Missouri Manifest Document Number
[redacted] 0 10 117

B. State Generator's ID - other
001157

5. Transporter 1 Company Name | 6. US EPA ID Number
Envir-All, Inc.

C. MO. Transporter's ID H-1645

D. Transporter's Phone 314-892-0907

7. Transporter 2 Company Name | 8. US EPA ID Number

E. MO. Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address | 10. US EPA ID Number
American Resource Recovery Corp
901 E. Dodley
Memphis, Tn 38106

G. State Facility's ID
N/A

H. Facility's Phone
901-774-2340

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers		13. Total Quantity	14. Unit Wt/Vol.	I. Waste No.
a. Waste Paint Related Material Flammable Liquid UN1263	03		165		MO. Other F003-F005
b.					MO. Other
c.					MO. Other
d.					MO. Other

J. Additional Descriptions for Materials Listed Above	K. Handling Codes for Wastes Listed Above
a.	
b.	
c.	
d.	

15. Special Handling Instructions and Additional Information
If undeliverable return to generator. In event of spills, fire or other emergency it may be necessary to call N.R.C. 1-800-424-8802

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and applicable state regulations.
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Printed/Typed Name	Signature	Month	Day	Year
X. James S. Moore	James S. Moore	10	07	88

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
Chris Kirchhofer	Chris Kirchhofer	10	07	88

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
David Roth	David Roth	10	07	88

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Jim R Ward	Jim R Ward	10	07	88

EPA Form 8700-22 (Rev. 9-86) MDNR-HWG 10 PREVIOUS EDITIONS ARE OBSOLETE

GENERATOR FINAL COPY — PART 2

THIS COPY MUST BE RETAINED BY THE GENERATOR AFTER ITS RETURN FROM THE TSDF.

2

INSTRUCTIONS FOR THE COMPLETION OF THIS FORM ARE ON A SEPARATE SHEET.

THIS DOCUMENT MUST BE USED FOR ALL MISSOURI-DESTINED SHIPMENTS.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
Division of Environmental Quality
Waste Management Program
P.O. Box 176 Jefferson City, Missouri 65102
314-751-3176

ROR # 4991

EMERGENCY RESPONSE
U.S. COAST GUARD
1-800-424-8802
CHEM TREC
1-800-424-9300
DEPT. OF NATURAL RESOURCES
314-634-2436

HAZARDOUS WASTE MANIFEST

Please print or type (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039, Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. M O D 0 0 6 2 7 5 0 3 6 — Manifest Document No. 00118

2. Page 1 of 1 — Information in the shaded areas is required by State law.

3. Generator's Name and Mailing Address
Steelcote Manufacturing Company
3418 Gratiot Street - St. Louis, MO 63103

4. Generator's Phone (314) 771-8053 Jim Moore

A. Missouri Manifest Document Number [redacted]

B. State Generator's ID - other 0 0 1 1 5 7

5. Transporter 1 Company Name: Earth Industrial Waste Management
6. US EPA ID Number: T N D 0 0 0 6 1 4 3 2 1

C. MO. Transporter's ID H-1128

D. Transporter's Phone 901-358-5695

7. Transporter 2 Company Name: None
8. US EPA ID Number:

E. MO. Transporter's ID

F. Transporter's Phone

9. Designated Facility Name and Site Address
Earth Industrial Waste Management, Inc.
3536 Fite Road
Millington, TN 38053
10. US EPA ID Number: T N D 0 0 0 6 1 4 3 2 1

G. State Facility's ID

H. Facility's Phone 901-358-5695

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers		13. Total Quantity	14. Unit Wt/Vol.	I. Waste No.
a. Waste, Flammable Liquid, n.o.s., UN1993	8	DM	400	G	EPA WASTE CODE F003,F005
b.					EPA WASTE CODE
c.					EPA WASTE CODE
d.					EPA WASTE CODE

J. Additional Descriptions for Materials Listed Above
a. 1022-001 Paint Sludge
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information
EMERGENCY PHONE NO. 901-358-5695.
In case of fire use carbon dioxide, dry chemical or foam. In case of spill, eliminate sources of ignition, dam up to prevent run-off and repackage contaminated material in DOT approved containers. NO SMOKING!! ALTERNATE FACILITY: RETURN TO GENERATOR.

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations and applicable state regulations.

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GENERATOR

Printed/Typed Name: Jim Moore — Signature: Jim Moore — Month 1 Day 1 Year 1

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name: Gary Linck — Signature — Month 04 Day 03 Year 89

18. Transporter 2 Acknowledgement of Receipt of Materials — Date

Printed/Typed Name — Signature — Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19. — Date

Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 9-88) MDNR-HWG 10 PREVIOUS EDITIONS ARE OBSOLETE

GENERATOR COPY — PART 6

IMPORTANT

SEE INSTRUCTIONS SHOULD PART 1 & 2 FAIL TO RETURN WITHIN 35 DAYS.

LAND DISPOSAL RESTRICTION NOTIFICATION
PAGE ONE - LISTED SPENT SOLVENTS (F001-F005)

GENERATOR: Steelcote MANIFEST NO. MO-

☒ Page One Only
Listed Spent Solvents (F001-F005)

[ ] Page Two Only "California List Wastes"

[ ] Both Page One and Page Two

	EIWM Code No.	Waste I.D. No.(s)
Line Item A	0222-001	F003, F005
Line Item B		
Line Item C		
Line Item D		

This notification is submitted to Earth Industrial Waste Management, Inc. i accordance with regulations published by EPA at 40 CFR 268. The abov referenced waste(s) is subject to the land disposal ban and the appropriat treatment standard has been marked below to indicate how the waste must b managed.

TREATMENT STANDARD (MG/LITER) **

Constituent	Manifest Line Item A	B	C	D	Waste Waters W/Solvents	Manifest Line Item A	B	C	D	Other Spent Solvents
Acetone					0.05					0.59
n-Butyl Alcohol					5.0					5.0
Carbon Disulfide					1.05					4.81
Carbon Tetrachloride					0.05					0.96
Chlorobenzene					0.15					0.05
Cresols and Cresylic Acid					2.82					0.75
Cyclohexanone					0.125					0.75
1,2-Dichlorobenzene					0.65					0.125
Ethyl Acetate					0.05					0.75
Ethyl Benzene					0.05					0.053
Ethyl Ether					0.05					0.75
Isobutanol					5.0					5.0
Methanol					0.25					0.75
Methylene Chloride					0.20					0.96
Methylene Chloride (Pharmaceutical)					12.7					0.96
Methyl Ethyl Ketone					0.05	X				0.75
Methyl Isobutyl Ketone					0.05	X				0.33
Nitrobenzene					0.66					0.125
Pyridine					1.12					0.33
Tetrachloroethylene					0.079					0.05
Toluene					1.12	X				0.33
1,1,1-Trichloroethane					1.05					0.41
1,1,2-Trichloroethane					1.05					0.96
Trichloroethylene					0.062					0.091
Trichlorofluromethane					0.05					0.96
Xylene					0.05	X				0.15

** The above constituent composition is based upon, [ ] an attached waste analysis or ☒ my thorough knowledge of the waste.

I hereby certify that all information submitted in this and all associated documents is complete and accurate to the best of my knowledge and information.

X James S Moore — Plant Manager — 4/3/89

Signed (Authorized Representative of Generator) Title /Date

LAND DISPOSAL RESTRICTION NOTIFICATION
PAGE TWO - "CALIFORNIA LIST" WASTES

This notification is submitted to Earth Industrial Waste Management, Inc. accordance with regulations published by EPA at 40 CFR 268. The was referenced on page one of this document is subject to the land disposal ban a the appropriate treatment standard has been marked below to indicate how t waste must be managed.

TREATMENT STANDARD (MG/LITER) **

Constituents	Manifest Line Item A	B	C	D	Concentration
Cyanide Liquid & Sludge					1,000.0
Arsenic					500.0
Cadmium					100.0
Chromium					500.0
Lead					500.0
Mercury					20.0
Nickel					134.0
Selenium					100.0
Thallium					130.0
Acid (Liquid)					pH < 2
Liquid HOC's Per App. III, Sec. 268					1,000.0
Liquid PCB					50.0

** The above constituent composition is based upon, [ ] an attached waste analysis or [ ] my thorough knowledge of the waste

Restricted Waste Subject to Variance

[ ] The waste identified on page one of this document is subject to a case-by-case extension under 40 CFR 268.5. a no-migration petition under 40 CF 268.6, a nationwide variance under Subpart C, or is soil or debri generated from a response action taken under CERCLA or corrective actio taken under RCRA.

I hereby certify that the information submitted in this and all associ documents is complete and accurate to the best of my knowledge and informati

Signed (Authorized Representative of Generator) Title Date

HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE, OR
PUBLIC SAFETY AUTHORITY, OR THE
U.S. ENVIRONMENTAL PROTECTION AGENCY

PROPER D.O.T. SHIPPING NAME: Waste Flammable Liquid N.O..S UN OR NA#: UN1993

GENERATOR INFORMATION:

NAME: Steelcote Manufacturing Company

ADDRESS: 3418 Gratiot Street

CITY: ST. Louis STATE: MO ZIP: 63103

EPA ID NO.: MOD006725036

EPA WASTE NO.: F003/F005

ACCUMULATION START DATE: January 1,1989

MANIFEST DOCUMENT NO.: 18

HANDLE WITH CARE!

CONTAINS HAZARDOUS OR TOXIC WASTES

STYLE WM-6

Printed by LABELMASTER, Div. of AMERICAN LABELMARK CO. CHICAGO, IL 60646

TO: Rich Ravens

FROM: Jim Moore

DATE: August 16, 1988

RE: Use of Reclaimed Solvent

The following is an analysis of our reclaimed solvent as done by Nicholas Litzsinger of Chemtech. We need to discuss how we can use this material. Let's get together at your convenience.

Reclaimed Solvent

MEK	19.3% ✓
ISO Butanol	1.0%
N-Butanol	3.8%
MIBK	4.0% ✓
Tolvene	5.9% ✓
N-Butyl Acetate	3.0%
Aromatic 100	7.3%
Xylene	54.2% ✓
Acetone	1.5%
	100.0%

Jim Moore

Jim Moore

Use in SPD

- COOK DOWN VERY LITTLE
- H_2O ON ALL TIME
- TEMP ↓ @ NIGHT NOT OFF

TO: RICH RAVENS

FROM: JIM MOORE

RE: USE OF RECLAIMED SOLVENT

8-16-88

THE FOLLOWING IS AN ANALYSIS OF OUR RECLAIMED SOLVENT AS DONE BY NICHOLAS LITZSINGER OF CHEMTECH. WE NEED TO DISCUSS HOW WE CAN USE THIS MATERIAL. LET'S GET TOGETHER AT YOUR CONVENIENCE,

RECLAIMED SOLVENT	
MEK	19.3%
ISOBUTANOL	1.0%
N-BUTANOL	3.8%
MIBK	4.0%
TOLUENE	5.9%
N-BUTYL ACETATE	3.0%
AROMATIC 100	7.3%
XYLENE	54.2%
ACETONE	1.5%
	100.0%

JIM MOORE

Nick
Chemtech

9 Compnts
By Volume:

MEK	19.3	F003
Iso Butanol	10%	F003
N-Butanol	3.8%	F003
MIBK	40%	F005
Toluene	5.9%	
N-Butyl Acetate	3%	
Aromatic 100	7.3%	
Xylene	5.2%	F003
Acetone	1.5%	F003
	100%	

1.5%

MATERIAL SAFETY DATA SHEET S-327

Dow Chemical U.S.A. Midland, MI 48674 Emergency Phone: 517-636-4400

PRODUCT NAME: ACETONE, SYNTHETIC

Effective Date: 05/30/85 Date Printed: 10/16/85 Product Code: 00259

1. INGREDIENTS:

Acetone CAS# 000067-64-1 99.5%

Substances listed in the Ingredients Section are those identified as being present at a concentration of 1% or greater, or 0.1% if the substance is on the list of potential carcinogens cited in OSHA Hazard Communication Standard. Where proprietary ingredient shows, the identity of this substance may be made available as provided in 29 CFR 1910.1200(I).

2. PHYSICAL DATA:

BOILING POINT: 133F, 56C
VAP PRESS: 181.7 mmHg @ 20C
VAP DENSITY: 2.00
SOL. IN WATER: Completely miscible.
SP. GRAVITY: 0.7880 @ 25/25C
APPEARANCE: Colorless liquid.
ODOR: Sweetish.

3. FIRE AND EXPLOSION HAZARD DATA:

FLASH POINT: OF, -18C
METHOD USED: TCC

FLAMMABLE LIMITS
LFL: 2.6 %
UFL: 12.8 %

EXTINGUISHING MEDIA: Alcohol foam, carbon dioxide, and dry chemical.

FIRE & EXPLOSION HAZARDS: Water can be used to cool fire-exposed containers, to protect personnel and to disperse

(Continued on Page 2)

3. FIRE AND EXPLOSION HAZARD DATA: (CONTINUED)

vapors and spills. The autoignition temperature is 869F (465C).

FIRE-FIGHTING EQUIPMENT: Firemen should wear normal protective equipment and positive pressure self-contained breathing apparatus.

4. REACTIVITY DATA:

STABILITY: (CONDITIONS TO AVOID) Keep away from flames and spark-producing equipment.

INCOMPATIBILITY: (SPECIFIC MATERIALS TO AVOID) Nitric plus acetic acids and nitric plus sulfuric acids.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide and some carbon monoxide.

HAZARDOUS POLYMERIZATION: Will not occur.

5. ENVIRONMENTAL AND DISPOSAL INFORMATION:

ACTION TO TAKE FOR SPILLS/LEAKS: Small spill - allow to evaporate if it can be done safely. Otherwise soak up with absorbent material and scoop into drums. Large spill - dike and pump into drums using air-operated or other non-spark-producing pump. Prevent acetone from entering drains or sewers.

DISPOSAL METHOD: Burn in incinerator. Follow all local, state, and federal requirements for disposal.

6. HEALTH HAZARD DATA:

EYE: May cause moderate eye irritation and moderate corneal injury. Vapors may irritate eyes.

SKIN CONTACT: Prolonged exposure not likely to cause significant

(Continued on Page 3)

6. HEALTH HAZARD DATA: (CONTINUED)

skin irritation. May cause drying or flaking of skin.

SKIN ABSORPTION: A single prolonged exposure is not likely to result in the material being absorbed through skin in harmful amounts. The LD50 for skin absorption in rabbits is 20,000 mg/kg.

INGESTION: Single dose oral toxicity is low. The oral LD50 for rats is >6000 mg/kg. No hazards anticipated from ingestion incidental to industrial exposure.

INHALATION: A single brief (minutes) inhalation exposure is not likely to cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract. Excessive exposure may cause anesthetic or narcotic effect.

SYSTEMIC & OTHER EFFECTS: Repeated excessive exposures to high amounts may cause anesthetic or narcotic effect. Repeated excessive exposures to smaller amounts may cause irritation to eyes and respiratory tract. Did not cause cancer in long-term animal studies. Results of in vitro ("test tube") mutagenicity tests have been negative.

7. FIRST AID:

EYES: Irrigate with flowing water immediately and continuously for 15 minutes. Consult medical personnel.

SKIN: Wash off in flowing water or shower.

INGESTION: Induce vomiting if large amounts are ingested. Consult medical.

INHALATION: Remove to fresh air. If not breathing, give mouth-to-mouth resuscitation. If breathing is difficult, give oxygen. Call a physician.

NOTE TO PHYSICIAN: No specific antidote. Supportive care. Treatment based on judgment of the physician in response to

(Continued on Page 4)

7. FIRST AID: (CONTINUED)

reactions of the patient.

8. HANDLING PRECAUTIONS:

EXPOSURE GUIDELINE(S): ACGIH TLV is 750 ppm. OSHA PEL is 1000 ppm.

VENTILATION: Control airborne concentrations below the exposure guideline. Use only with adequate ventilation. Local exhaust ventilation may be necessary. Lethal concentrations may exist in areas with poor ventilation.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required for certain operations, use an approved air-purifying respirator. For emergency and other conditions where the exposure guideline may be greatly exceeded, use an approved positive-pressure self-contained breathing apparatus.

SKIN PROTECTION: For brief contact, no precautions other than clean body-covering clothing should be needed. Use impervious gloves when prolonged or frequently repeated contact could occur.

EYE PROTECTION: Use chemical goggles. If vapor exposure causes eye irritation, use a full-face, supplied-air respirator.

9. ADDITIONAL INFORMATION:

SPECIAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Practice reasonable care to avoid eye and skin contact and to avoid breathing vapors. Use spark-resistant tools; no smoking area for handling and storage. Refer to the acetone product data bulletin.

MSDS STATUS: Revised 1.

(Continued on Page 5)

PRODUCT NAME: ACETONE, SYNTHETIC

Effective Date: 05/30/85 Date Printed: 10/16/85 Product Code: 00259

MATERIAL SAFETY DATA SHEET

METHYL ETHYL KETONE S-321

MSDS No. HCR000126

Rev. Date

ARCO CHEMICAL COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
1500 MARKET STREET
P.O. BOX 7258
PHILADELPHIA, PENNSYLVANIA 19101

19.3%

IMPORTANT: Read this MSDS before handling and disposing of this product and pass this information on to employees, customers, and users of this product
This product is covered by the OSHA Hazard Communication Rule and this document has been prepared in accord with the MSDS requirements of the rule.

I. General

Trade Name	METHYL ETHYL KETONE
Other Names	ETHYL METHYL KETONE, MEK 2-BUTANONE

JAN 16 1989

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
215/353-8300 ARCO CHEM
CUSTOMER SERVICE
800/321-7000 INFO ONLY

Chemical Family	ALIPHATIC KETONE
Generic Name	N/P

DOT Hazardous Materials Proper Shipping Name
METHYL ETHYL KETONE (MEK)

DOT Hazard Class
FLAMMABLE LIQUID

CAS No.	SEE SECTION IX	Company ID No.	E000012600
UN/NA ID No.	UN 1193		

II. DANGER Summary of Hazards

PHYSICAL HAZARDS: EXTREMELY FLAMMABLE LIQUID

ACUTE HEALTH EFFECTS (SHORT-TERM):
MODERATELY TOXIC BY INHALATION
MODERATE EYE IRRITANT
MODERATELY TOXIC BY SKIN ABSORPTION
MODERATE SKIN IRRITANT
MODERATELY TOXIC BY INGESTION

CHRONIC HEALTH EFFECTS (LONG-TERM):
REPEATED BREATHING OR SKIN CONTACT OF METHYL ETHYL KETONE MAY INCREASE THE POTENCY OF NEUROTOXINS SUCH AS HEXANE OR METHYL N-BUTYL KETONE, IF EXPOSURES OCCUR AT THE SAME TIME. MEK HAS NOT BEEN SHOWN TO BE A CHRONIC NEUROTOXIN BY ITSELF.

III. Fire and Explosion

Flash Point (Method)	Autoignition Temperature (Method)	Flammable Limits (% Vol. in Air) At Normal Atmospheric Temperature and Pressure
20° F (TCC)	960° F	Lower AP 2 Upper AP 12

Fire and Explosion Hazards: RELEASES FLAMMABLE VAPORS BELOW NORMAL AMBIENT TEMPERATURES. WHEN MIXED WITH AIR AND EXPOSED TO IGNITION SOURCE, VAPORS CAN BURN IN OPEN OR EXPLODE IF CONFINED. FLAMMABLE VAPORS MAY BE HEAVIER THAN AIR. MAY TRAVEL LONG DISTANCES ALONG GROUND BEFORE IGNITING/FLASHING BACK TO VAPOR SOURCE.

Extinguishing Media: DRY CHEMICAL, CO2, WATERSPRAY, ALCOHOL TYPE FOAM, WATER FOG

Special Firefighting Procedures: DO NOT ENTER FIRE AREA WITHOUT PROPER PROTECTION. SEE SECTION X - DECOMPOSITION PRODUCTS POSSIBLE. FIGHT FIRE FROM SAFE DISTANCE/PROTECTED LOCATION. HEAT MAY BUILD PRESSURE/RUPTURE CLOSED CONTAINERS, SPREADING FIRE, INCREASING RISK OF BURNS/INJURIES. DO NOT USE SOLID WATER STREAM/MAY SPREAD FIRE. USE WATER SPRAY/FOG FOR COOLING. AVOID FROTHING/STEAM EXPLOSION. NOTIFY AUTHORITIES IF LIQUID ENTERS SEWER/PUBLIC WATERS.

IV. Health Hazards

SEE SUPPLEMENT BEGINNING ON PAGE 4

Summary of Acute Hazards	MODERATE HEALTH HAZARD - SEE BELOW FOR ROUTE-SPECIFIC DETAILS.	
ROUTE OF EXPOSURE	SIGNS AND SYMPTOMS	Primary Route(s)
Inhalation	OVEREXPOSURE MAY CAUSE COUGHING, SHORTNESS OF BREATH, DIZZINESS, INTOXICATION AND COLLAPSE.	X
Eye Contact	MAY CAUSE MODERATE IRRITATION, INCLUDING BURNING SENSATION, TEARING, REDNESS OR SWELLING.	X
Skin Absorption	EXPOSURE TO THIS MATERIAL CAN RESULT IN ABSORPTION THROUGH SKIN CAUSING HEALTH HAZARD.	X
Skin Irritation	MAY CAUSE DELAYED SKIN IRRITATION AND BLISTERING.	X
Ingestion	SWALLOWING THIS MATERIAL MAY RESULT IN HEALTH HAZARD.	X
Summary of Chronic Hazards and Special Health Effects	THE PRIMARY CHRONIC EFFECT OF METHYL ETHYL KETONE IS ITS ABILITY TO INTERACT WITH HEXANE AND SIMILAR ALKANES TO POTENTIATE THEIR NEUROTOXICITY. MEK HAS NOT PRODUCED NEUROTOXICITY BY ITSELF WHEN TESTED IN ANIMALS. SEE SUPPLEMENTAL INFORMATION ON PAGE 5 FOR FURTHER INFORMATION ON CHRONIC HAZARDS. THIS MATERIAL OR ITS EMISSIONS MAY AFFECT THE CENTRAL NERVOUS SYSTEM AND/OR AGGRAVATE PRE-EXISTING DISORDERS. PROLONGED OBSERVATION MAY BE INDICATED.	

V. Protective Equipment and Other Control Measures

SEE SUPPLEMENT BEGINNING ON PAGE 6

Respiratory	IF EXPOSURE CAN EXCEED THE PEL/TLV, USE ONLY NIOSH/MSHA APPROVED AIR-PURIFYING OR SUPPLIED AIR RESPIRATOR OPERATED IN A POSITIVE PRESSURE MODE.
Eye	EYE PROTECTION SUCH AS CHEMICAL SPLASH GOGGLES AND/OR FACE SHIELD MUST BE WORN WHEN POSSIBILITY EXISTS FOR EYE CONTACT DUE TO SPLASHING OR SPRAYING LIQUID, AIRBORNE PARTICLES, OR VAPOR. CONTACT LENSES SHOULD NOT BE WORN.
Skin	WHEN SKIN CONTACT IS POSSIBLE, PROTECTIVE CLOTHING INCLUDING GLOVES, APRON, SLEEVES, BOOTS, HEAD AND FACE PROTECTION SHOULD BE WORN. THIS EQUIPMENT MUST BE CLEANED THOROUGHLY AFTER EACH USE.
Engineering Controls	USE ONLY WHERE VENTILATION CAN CONTROL EXPOSURES TO WITHIN EXPOSURE STANDARD(S). SPECIAL ATTENTION SHOULD BE GIVEN TO LOW AREAS/PITS WHERE FLAMMABLE VAPORS CAN ACCUMULATE.
Other Hygienic and Work Practices	NON-STATIC CREATING CLOTHING AND CONDUCTIVE SHOES SHOULD BE WORN. USE GOOD PERSONAL HYGIENE PRACTICES. WASH HANDS BEFORE EATING, DRINKING, SMOKING, OR USING TOILET FACILITIES. PROMPTLY REMOVE SOILED CLOTHING/WASH THOROUGHLY BEFORE REUSE. SHOWER AFTER WORK USING PLENTY OF SOAP AND WATER.

VI. Occupational Exposure Limits

Substance	Source	Date	Type	Value/Units	Time
METHYL ETHYL KETONE	ACGIH	1984	TWA	200 PPM	8 HRS
			STEL	300 PPM	15 MIN
	OSHA	1971	TWA	200 PPM	8 HRS

VII. Emergency and First Aid

Inhalation	IF OVERCOME BY EXPOSURE, REMOVE VICTIM TO FRESH AIR IMMEDIATELY. GIVE OXYGEN OR ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN EMERGENCY MEDICAL ATTENTION. PROMPT ACTION IS ESSENTIAL.
Eye Contact	IN CASE OF EYE CONTACT, IMMEDIATELY RINSE WITH CLEAN WATER FOR 20-30 MINUTES. RETRACT EYELIDS OFTEN. OBTAIN EMERGENCY MEDICAL ATTENTION.
Skin Contact	IMMEDIATELY REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH MILD SOAP/WATER. FLUSH W/LUKEWARM WATER FOR 15 MINUTES. IF STICKY, USE WATERLESS CLEANER FIRST. SEEK MEDICAL ATTENTION IF ILL EFFECT OR IRRITATION DEVELOPS.
Ingestion	IF SWALLOWED, GIVE LUKEWARM WATER (PINT) IF VICTIM COMPLETELY CONSCIOUS/ ALERT. DO NOT INDUCE VOMITING/RISK OF DAMAGE TO LUNGS EXCEEDS POISONING RISK. OBTAIN EMERGENCY MEDICAL ATTENTION.
Emergency Medical Treatment Procedures	AIRWAY PROTECTION MAY BE NECESSARY. BE PREPARED TO GIVE OXYGEN AND, IF NECESSARY, INTUBATE. TREAT BURNS OR ALLERGIC REACTIONS CONVENTIONALLY AFTER DECONTAMINATION.

VIII. Spill and Disposal

Precautions if Material is Spilled or Released	EXTREMELY FLAMMABLE LIQUID. RELEASE CAUSES IMMEDIATE FIRE/EXPLOSION HAZARD. LIQUIDS/VAPORS MAY IGNITE. EVACUATE/LIMIT ACCESS. EQUIP RESPONDERS WITH PROPER PROTECTION (SEE SEC. V). KILL ALL IGNITION SOURCES. STOP RELEASE. PREVENT FLOW TO SEWERS/PUBLIC WATERS. RESTRICT WATER USE FOR CLEANUP.NOTIFY FIRE/ENVIRONMENTAL AUTHORITIES. IMPOUND/RECOVER LARGE LAND SPILL. BLANKET WITH FIREFIGHTING FOAM (SEE SEC. III). SOAK UP SMALL SPILL WITH INERT SOLIDS. USE SUITABLE DISPOSAL CONTAINERS. ON WATER, MATERIAL SOLUBLE/MAY FLOAT OR SINK.MAY BIODEGRADE. CONTAIN/MINIMIZE DISPERSION/COLLECT. DISPERSE RESIDUE TO REDUCE AQUATIC HARM. REPORT PER REGULATORY REQUIREMENTS.
Waste Disposal Methods	CONTAMINATED PRODUCT/SOIL/WATER MAY BE RCRA/OSHA HAZARDOUS WASTE DUE TO POTENTIALLY LOW FLASH POINT (SEE 40 CFR 261 AND 29 CFR 1910). LANDFILL SOLIDS AT PERMITTED SITES. USE REGISTERED TRANSPORTERS. BURN CONCENTRATED LIQUIDS IN SYSTEMS COMPATIBLE WITH WATER SOLUBLE WASTES. AVOID FLAMEOUTS. ASSURE EMISSIONS COMPLY WITH APPLICABLE REGULATIONS. DILUTE AQUEOUS WASTE MAY BIODEGRADE. AVOID OVERLOADING/POISONING PLANT BIOMASS. ASSURE EFFLUENT COMPLIES WITH APPLICABLE REGULATIONS.

IX. Components

(This may not be a complete list of components)

Component Name	CAS No.	Carcinogen##		Composition amount (Wt.) (See Qualification on Page 4)
METHYL ETHYL KETONE	78-93-3	N/AP	AP	99 PERCENT

Compositions given are typical values, not specifications.

##Listed By: 1 = NTP, 2 = IARC, 3 = OSHA, 4 = Other

X. Physical and Chemical Data

Boiling Point (At 760.0 mm Hg) AP 79°C 174°F	Viscosity Units, Temp. (Method) LT 1 CPS AT 25°C (KINEM)		Dry Point N/DA
Freezing Point AP -86°C	Vapor Pressure (MM HG AT 20°C) AP 71.2		Volatile Characteristics APPRECIABLE
Specific Gravity (H_2O = 1 at 39.2°F) AP 0.81	Vapor Sp. Gr. (Air = 1.0 at 60°-90°F) AP 2.5	Solubility in Water APPRECIABLE	pH N/DA
Hazardous Polymerization NOT EXPECTED TO OCCUR	Other Chemical Reactivity N/P		Stability STABLE

Other Physical and Chemical Properties	N/P
Appearance and Odor	CLEAR, COLORLESS LIQUID WITH AN ACETONE ODOR
Conditions to Avoid	HEAT, SPARKS, AND OPEN FLAME
Materials to Avoid	CAN REACT WITH OXIDIZING MATERIALS
Hazardous Decomposition Products	INCOMPLETE COMBUSTION MAY PRODUCE CARBON MONOXIDE AND CARBON DIOXIDE.

XI. Additional Precautions

Handling, Storage and Decontamination Procedures

STORE IN TIGHTLY CLOSED/PROPERLY VENTED CONTAINERS AWAY FROM HEAT, SPARKS, OPEN FLAME, STRONG OXIDIZING AGENTS. USE ONLY NON-SPARKING TOOLS. STORE DRUMS WITH BUNG IN UP POSITION. CAREFULLY VENT INTERNAL PRESSURE BEFORE REMOVING CLOSURE. CONTAINERS MUST BE GROUNDED BEFORE BEGINNING TRANSFER. ELECTRICAL EQUIPMENT SHOULD CONFORM TO NATIONAL ELECTRIC CODE. HANDLE "EMPTY" CONTAINERS WITH CARE/VAPOR RESIDUE MAY BE FLAMMABLE. VAPOR SPACE ABOVE LIQUID MAY BE FLAMMABLE/EXPLOSIVE UNLESS BLANKETED WITH INERT GAS.

ISOLATE, VENT, DRAIN, WASH AND PURGE SYSTEMS OR EQUIPMENT BEFORE MAINTENANCE OR REPAIR. REMOVE ALL IGNITION SOURCES. CHECK ATMOSPHERE FOR EXPLOSIVENESS AND OXYGEN DEFICIENCIES. USE ADEQUATE PERSONAL PROTECTIVE EQUIPMENT. OBSERVE PRECAUTIONS PERTAINING TO CONFINED SPACE ENTRY.

General Comments

EMERGENCY EYE WASH FOUNTAINS AND SAFETY SHOWERS SHOULD BE AVAILABLE IN THE IMMEDIATE VICINITY OF ANY POTENTIAL EXPOSURE.

SOME OF THE INFORMATION PRESENTED AND CONCLUSIONS DRAWN HEREIN ARE FROM SOURCES OTHER THAN DIRECT TEST DATA ON THE PRODUCT ITSELF.

- - - Note - - - Qualifications:

EQ = Equal	AP = Approximately	N/P = No Applicable Information Found
LT = Less Than	UK = Unkown	N/AP = Not Applicable
GT = Greater Than	TR = Trace	N/DA = No Data Available

XII. Label Information

Manufacturer:
ARCO CHEMICAL COMPANY
DIVISION OF ATLANTIC RICHFIELD COMPANY
1500 MARKET STREET
P.O. BOX 7258
PHILADELPHIA, PENNSYLVANIA 19101

Telephone Numbers
EMERGENCY
800/424-9300 CHEMTREC
215/353-8300 ARCO CHEM
CUSTOMER SERVICE
800/321-7000 INFO ONLY

Use Statement:
FOR INDUSTRIAL USE ONLY
KEEP OUT OF REACH OF CHILDREN

Signal Word: DANGER

Physical Hazards:
EXTREMELY FLAMMABLE

Health Hazards:
INGESTION, INHALATION, AND SKIN CONTACT HAZARD SKIN AND EYE IRRITANT

Precautionary Measures:
DO NOT HANDLE NEAR HEAT, SPARKS, OR OPEN FLAME.
KEEP CONTAINER CLOSED WHEN NOT IN USE.
DO NOT STORE NEAR COMBUSTIBLE MATERIALS.
AVOID CONTACT WITH EYES, SKIN, AND CLOTHING.
AVOID PROLONGED OR REPEATED BREATHING OF VAPOR.
AVOID PROLONGED OR REPEATED CONTACT WITH SKIN.
USE ONLY WITH ADEQUATE VENTILATION/PERSONAL PROTECTION.
PREVENT CONTACT WITH FOOD, CHEWING, OR SMOKING MATERIALS.
WASH THOROUGHLY AFTER HANDLING.
DO NOT TASTE/SWALLOW.

DOT Information:
UN/NA ID Number- UN 1193
Hazard Class- FLAMMABLE LIQUID
Proper Shipping- METHYL ETHYL KETONE (MEK)

Instructions:
In case of fire, use- DRY CHEMICAL, CO2, WATERSPRAY, ALCOHOL TYPE FOAM, WATER FOG

First Aid
-Inhalation: IF OVERCOME BY EXPOSURE, REMOVE VICTIM TO FRESH AIR IMMEDIATELY. GIVE OXYGEN OR ARTIFICIAL RESPIRATION AS NEEDED. OBTAIN EMERGENCY MEDICAL ATTENTION. PROMPT ACTION IS ESSENTIAL.
-Eye Contact: IN CASE OF EYE CONTACT, IMMEDIATELY RINSE WITH CLEAN WATER FOR 20-30 MINUTES. RETRACT EYELIDS OFTEN. OBTAIN EMERGENCY MEDICAL ATTENTION.
-Skin Contact: IMMEDIATELY REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH MILD SOAP/WATER. FLUSH W/LUKEWARM WATER FOR 15 MINUTES. IF STICKY, USE WATERLESS CLEANER FIRST. SEEK MEDICAL ATTENTION IF ILL EFFECT OR IRRITATION DEVELOPS.
-Ingestion: IF SWALLOWED, GIVE LUKEWARM WATER (PINT) IF VICTIM COMPLETELY CONSCIOUS/ ALERT. DO NOT INDUCE VOMITING/RISK OF DAMAGE TO LUNGS EXCEEDS POISONING RISK. OBTAIN EMERGENCY MEDICAL ATTENTION.

In case of spill,

Protective Equipment:
-Respiratory: USE NIOSH/MSHA APPROVED AIR-PURIFYING OR SUPPLIED AIR RESPIRATOR AS APPROPRIATE.
-Eye: CHEMICAL SPLASH GOGGLES AND/OR FACE SHIELD.
-Skin: PROTECTIVE CLOTHING INCLUDING GLOVES, APRON, SLEEVES, BOOTS, AND FULL HEAD/FACE PROTECTION.

XIII. Supplement

HEALTH HAZARDS-SUMMARY OF CHRONIC HAZARDS

MEK HAS BEEN SHOWN TO POTENTIATE THE NEUROTOXIC EFFECTS OF HEXANE, METHYL N-BUTYL KETONE, 5-NONANONE AND OTHER STRAIGHT CHAIN ALKANES CAPABLE OF BEING METABOLIZED TO GAMMA DIKETONES. THE EXACT MECHANISM OF THIS POTENTIATION IS UNKNOWN AND MAY BE SUFFICIENTLY INDEPENDENT OF THE METABOLIC FORMATION OF GAMMA-DIKETONES TO EXTEND OVER TO SUCH OTHER WELL KNOWN NEUROTOXINS AS ACRYLAMIDE AND THE ORGANOPHOSPHATES, TRIORTHOCRESYL PHOSPHATE AND LEPTOPHOS. THE NEUROPATHY IS INDUCED BY A "DYING BACK" TYPE DEGENERATION OF THE LARGE MOTOR AXONS OF THE PERIPHERAL NERVOUS SYSTEM. SYMPTOMS INCLUDE A PROGRESSIVELY WORSENING WEAKNESS OF THE EXTREMITIES WHICH STARTS IN THE FEET AND PROCEEDS PROXIMALLY. ATAXIA AND CNS INVOLVEMENT MAY FOLLOW IF EXPOSURE IS CONTINUED. THE CONDITION GROWS PROGRESSIVELY WORSE SEVERAL WEEKS FOLLOWING DISCONTINUANCE OF EXPOSURES BUT IMPROVES SUBSEQUENTLY AND IS CONSIDERED REVERSIBLE UNLESS CNS INVOLVEMENT EXISTS.

S-303

MATERIAL SAFETY DATA SHEET

EASTMAN CHEMICAL PRODUCTS, INC.
Kingsport, Tennessee 37662

For Health Hazard Information, call: (615) 229-6094, 8am-5pm (Eastern), Mon.-Fri.
(615) 229-4374 at all other times

For other information, call: (615) 229-3339 Date of Preparation: 02-21-84

Approved by U. S. Department of Labor: Essentially Similar to OSHA-20

SECTION I. IDENTIFICATION

- Product Name: n-Butyl Alcohol
- Synonym: Butanol
- Formula: $CH_3CH_2CH_2CH_2OH$
- Molecular Weight: 74.12

3.8%

SECTION II. PRODUCT AND COMPONENT HAZARD DATA

A. COMPONENT:	Approx. Percent	TLV**	CAS Reg. No.
n-Butyl alcohol	100	50 ppm	71-36-3

**See Section VI-A for additional information on exposure limits.

B. PRECAUTIONARY LABEL STATEMENTS:

WARNING! FLAMMABLE
CAUSES EYE IRRITATION
MAY BE HARMFUL IF INHALED

Keep away from heat, sparks, and flame.
Avoid contact with eyes.
Avoid breathing vapor or mist.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

FIRST AID: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. If inhaled, remove to fresh air. Treat symptomatically. Call a physician if symptoms persist.

IN CASE OF FIRE: Use water spray, dry chemical, "alcohol" foam, or CO_2. Use water spray to keep fire-exposed containers cool.

IN CASE OF SPILL: Eliminate all ignition sources. Flush spill area with water spray. Prevent runoff from entering drains, sewers, and streams. Use water spray to dilute spill to a nonflammable mixture.

Since emptied packages retain product residue, follow label warnings even after package is emptied.

SECTION III. PHYSICAL DATA

- Appearance and Odor: Colorless liquid; odor similar to fusel oil.
- Boiling Point: 117°C (243°F)
- Melting Point: -89°C (-128°F)
- Specific Gravity (H_2O = 1): 0.811
- Vapor Pressure: 5.5 mm Hg at 20°C
- Percent Volatile by Volume: approx 100
- Vapor Density (Air = 1): 2.55
- Evaporation Rate (n-Butyl acetate = 1): 0.5
- Solubility in Water: 7.9%; moderate.

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

- Flash Point: 36°C (97°F)
  Method Used: TCC
- Autoignition Temperature: 355°C (670°F); ASTM D-2155
- Flammable Limits: LEL 1.73% at 54°C UEL 10.7% at 94°C
- Extinguishing Agent: Water Spray, Dry Chemical, CO_2, "Alcohol" Foam
- Special Fire-Fighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Use water spray to keep fire-exposed containers cool.
- Unusual Fire and Explosion Hazards: Flammable liquid (see Section VIII). Vapors are heavier than air and may travel considerable distance to a source of ignition and flash back.

SECTION V. REACTIVITY DATA

- Stability: Stable.
- Incompatibility: Oxidizing materials can cause a vigorous reaction.
- Hazardous Decomposition Products: As with any other organic material, combustion will produce carbon dioxide and probably carbon monoxide.
- Hazardous Polymerization: Will not occur.

SECTION VI. TOXICITY AND HEALTH

A. EXPOSURE LIMITS

- OSHA Permissible Exposure Limit (PEL): 100 ppm-TWA.
- Threshold Limit Value (TLV): 50 ppm-C, "Skin Notation", ACGIH, 1983-84.
- A NIOSH industrial hygiene analytical method is available. (1)

B. EXPOSURE EFFECTS

Inhalation: Vapor may cause mucous membrane irritation, headache, dizziness, and in excess concentrations, narcosis (drowsiness, sleepiness, etc.).

Eyes: Liquid and vapor cause irritation.

Skin: Prolonged skin contact may produce irritation and result in some skin absorption.

C. FIRST AID

Inhalation: Remove from exposure, treat symptomatically, and get medical attention if symptoms persist.

Eyes: Immediately flush with plenty of water for at least 15 min and get medical attention.

Skin: Flush thoroughly with water.

D. TOXICITY DATA

Test	Species	Result	Toxicity Classification (2)
Acute oral LD_{50}	Rat	2.5 g/kg (3)	Slightly toxic
Acute oral LD_{50}	Rat	4.36 g/kg (3)	Slightly toxic
Acute oral LD_{50}	Rabbit	3.4 g/kg (3)	Slightly toxic
Inhalation LC_{50}	Rat	>8520 ppm/6 h (4)	Slightly toxic
Inhalation LC_{50}	Rat	>8000 ppm/4 h (3)	Slightly toxic
Dermal LD_{50}	Rabbit	5.3 g/kg (3)	Practically nontoxic
Skin irritation	Rabbit	Slight (5)	
Eye irritation	Rabbit	Strong (6)	

Signs of toxicity in animals exposed to n-butyl alcohol in air include: mucous membrane irritation, restlessness, ataxia, prostration and narcosis. Dermal applications to rabbits of 42 to 55 mL/kg/day for 1 to 4 consecutive days caused death in all the animals. (3)

Guinea pigs exposed to 100 ppm n-butyl alcohol in the atmosphere for 4 h/day at 64 days (1 day/wk omitted) showed weight gain but also some decrease in the number of red blood cells and a relative and absolute lymphocytosis. (7) Mice exposed repeatedly to an airborne concentration of 8000 ppm of n-butyl alcohol for a total of 130 h showed narcosis and reversible fatty liver change; however, the mice gained weight and there were no deaths. Rabbits exposed by dermal applications of 20 mL/kg/day of the compound for 30 days over a 6-wk period showed no deaths. (3)

Workers exposed to airborne concentrations of 200 ppm (or greater) n-butyl alcohol occasionally developed increasing corneal inflammation associated with burning sensation, blurred vision, tearing, photophobia, (beginning at the middle of the wk and growing more severe at the end of the wk) in addition to slight to moderate corneal edema and mild conjunctival edema; in each case, the conditions subsided over the weekend. At 100 ppm complaints of irritation were rare. (3)

SECTION VII. PERSONAL PROTECTION AND CONTROLS

A. RESPIRATORY PROTECTION

An appropriate NIOSH-approved respirator for organic vapor or mist should be worn if needed.

B. VENTILATION

General: Recommend at least ten air changes per hour for good general room ventilation.

Local Exhaust: Recommended to control mist and vapor. See Section VI-A for detailed information on exposure limits.

C. SKIN AND EYE PROTECTION

Safety glasses should be worn in any type of industrial operation. Protective gloves should be worn.

D. OTHER CONTROL MEASURES

An eye bath and washing facilities should be available. Wash thoroughly after handling.

SECTION VIII. SPECIAL STORAGE AND HANDLING PRECAUTIONS

Material is classified as a Flammable Liquid. Keep away from heat, sparks, and flame. Keep container closed. Use with adequate ventilation.

Since emptied packages retain product residue, follow label warnings even after package is emptied.

SECTION IX. SPILL, LEAK, AND DISPOSAL PRACTICES

Steps to be Taken in Case Material is Released or Spilled: Eliminate all ignition sources. Small spills may be collected with absorbent materials. For large spills, use water spray to dilute spill to a nonflammable mixture. Prevent runoff from entering drains, sewers, or streams.

Waste Disposal Method: Incineration. Observe all federal, state, and local laws concerning health and environment.

SECTION X. ENVIRONMENTAL EFFECTS DATA

A. SUMMARY: This product has been tested for environmental effects. Some laboratory test data and published data (4,8,9,10,11,12,13) are available for this product, and these data and have been used to provide the following estimate of environmental impact.

This product has a high biological oxygen demand, and it is expected to cause significant oxygen depletion in aquatic systems. It has a low potential to affect aquatic organisms. It is expected to be readily biodegradable and is not likely to bioconcentrate. If diluted with a large amount of water, this product released into the environment is not expected to have a significant impact.

B. OXYGEN DEMAND DATA

- COD: 1.90 g/g (8); 2.46 g/g (9)
- BOD_5: 1.1-2.04 g/g (8); 1.71 g/g (9)
- BOD_{20}: 1.89 g/g (8)

C. ACUTE AQUATIC EFFECTS

- 24-h LC_{50}; Water flea: 1855 mg/L (10)
- 24-h LC_{50}; Creek chub: 1000-1400 mg/L (8)
- 24-h LC_{50}; Goldfish: 1900 mg/L (11)
- 48-h LC_{50}; Golden orfe (minnow): 1200 mg/L (4); 1770 mg/L (12)*

*Results of the same test carried out at two different laboratories.

D. BIOCONCENTRATION POTENTIAL

- Octanol/water partition coefficient: Log P = 0.32-0.89; P = 2.1-7.8 (13)

SECTION XI. TRANSPORTATION

DOT Hazard Classification: Flammable liquid
Flashpoint: See Section IV.

SECTION XII. REFERENCES

1. NIOSH Manual of Analytical Methods, 2nd Edition, Volume 2. Issued by the National Institute for Occupational Safety and Health. Washington, U. S. Government Printing Office, 1977, Method S66.

2. H. C. Hodge and J. H. Sterner. Tabulation of toxicity classes. Am. Ind. Hyg. Assoc. Q. 1949; 10:93-96.

3. G. D. Clayton and F. E. Clayton, Editors. Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition, Volume 2C. New York, Wiley-Interscience, 1982, pp. 4571-4578.

4. Unpublished data, Health, Safety, and Human Factors Laboratory, Eastman Kodak Co., Rochester, New York.

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8. K. Verschueren. Handbook of Environmental Data on Organic Chemicals. New York, Van Nostrand Reinhold Company, 1977, pp. 136-137.

9. A. L. Bridie, C.J.M. Wolff, and M. Winter. BOD and COD of some petrochemicals. Water Res. 1979; 13(7):627-630.

10. V. G. Bringmann and R. Kuehn. Results of the damaging effect of water pollutants on Daphnia magna. Z. Wasser Abwasser Forsch. 1977; 10(5):161-166 (in German).

11. A. L. Bridie, C.J.M. Wolff, and M. Winter. The acute toxicity of some petrochemicals to goldfish. Water Res. 1979; 13:623-626.

11. I. Juhnke and D. Leudemann. Results of the study of 200 chemical compounds on acute fish toxicity using the golden orfe test. Z. Wasser Abwasser Forsch. 1978; 11(5):161-164 (in German).

13. A. J. Leo and C. Hansch, Editors. Chemical Parameter Data Base, Medicinal Chemistry Project, Pomona College, Seaver Chemistry Laboratory, Claremont, California, July 10, 1980.

Material Safety Data Sheet

Hoechst Celanese

Hoechst Celanese
Chemical Group
P.O. Box 569320 / Dallas, Texas 75356-9320
Information Phone: 214-689-4000
Emergency Phone: 800-835-5235

METHYL ISOBUTYL KETONE

S-322

4.0%

Issued January 1, 1988 #64

Identification

Product name: Methyl isobutyl ketone

Chemical name: Methyl isobutyl ketone

Chemical family: Ketone

Formula: $CH_3COCH_2CH(CH_3)_2$

Molecular weight: 100

CAS number: 108-10-1

CAS name: 4-Methyl-2-pentanone

Synonyms: 4-Methyl-2-pentanone; 2-methyl-4-pentanone; MIBK; isobutyl methyl ketone; isopropyl acetone.

Department of Transportation information
Hazard classification: Flammable Liquid
Shipping name: Flammable Liquid NOS (Methyl Isobutyl Ketone)
United Nations number: UN 1993
DOT Emergency Response Guide no.: 26

Physical data

Boiling point (760 mm Hg): 115.8°C (240°F)

Freezing point: −83.5°C (−118°F)

Specific gravity (H_2O = 1 @ 20/20°C): 0.8020

Vapor pressure (20°C): 28 mm Hg

Vapor density (Air = 1 @ 20°C): 3.5

Solubility in water (% by WT @ 20°C): 1.9

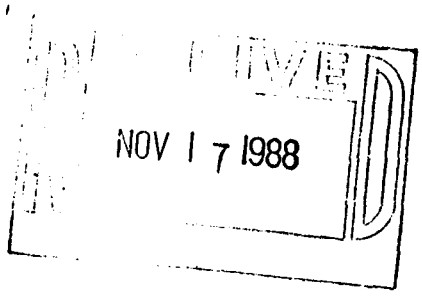
Percent volatiles by volume: 100

Evaporation rate (BuAc = 1): 1.6

Appearance and odor: Clear, colorless, mobile liquid with characteristic "ketone" odor.

Hazardous ingredients

Methyl isobutyl ketone, 99.8%



Fire and explosion hazard data

Flammable limits in air, % by volume
Upper: 8.0
Lower: 1.2

Flash point (test method):
Tag closed cup (ASTM D56): 64°F (18°C)

Extinguishing media:
Use CO_2 or dry chemical for small fires, alcohol-type aqueous film-forming foam or water spray for large fires. Water may be ineffective but should be used to cool fire-exposed structures and vessels.

Special fire-fighting procedures:
Wear self-contained breathing apparatus (SCBA) and complete personal protective equipment when potential for exposure to vapors or products of combustion exists.

Unusual fire and explosion hazards:
Vapor is heavier than air and can travel considerable distance to a source of ignition and flashback. Material creates a special hazard because it floats on water.

Special hazard designations

	HMIS	NFPA
Health:	2	2
Flammability:	3	3
Reactivity:	0	0
Personal protective equipment:	G	—

Key: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

OSHA 29CFR1910.1200 evaluation:
Hazardous

Reactivity data

Stability:
Stable

Hazardous polymerization:
Will not occur.

Conditions to avoid:
Heat, sparks and flame.

Materials to avoid:
Caustic soda and other strong alkalis; hydrochloric, sulfuric and other strong inorganic acids; amines; oxidizing agents such as hydrogen peroxide, nitric acid, perchloric acid or chromium trioxide.

Hazardous combustion or decomposition products:
Carbon monoxide.

Health data

Permissible exposure limits
OSHA standard: 100 ppm, 8-hr TWA
ACGIH TLV®: 50 ppm, 8-hr TWA; 75 ppm, 15-min STEL

Immediately Dangerous to Life and Health level:
3000 ppm

Effects of exposure/toxicity data

Acute:
Ingestion (swallowing): May cause mental sluggishness. Slightly toxic to animals (oral LD50, rats: 2.1 g/kg).
Inhalation (breathing): Causes irritation of nasal passages and throat. Can cause stupor. Slightly toxic to animals (inhalation LCLo, rats, 15 min: 4000 ppm).
Skin contact: Essentially non-irritating. Repeated or prolonged contact can cause drying of skin. Slightly toxic to animals by absorption (dermal LD50, rabbits: >3 g/kg).
Eye contact: Liquid and vapors are slightly to moderately irritating to the eyes upon contact. Can cause injury which may persist for several days.

Chronic:
Mutagenicity: *In vitro*, no information. *In vivo*, no information.
Carcinogenicity: No information.
Reproduction: No information.
Other: Increased weights of rat and mouse livers in inhalation study (1000 ppm, 14 weeks). Can damage kidneys.

Emergency and first aid procedures
Ingestion (swallowing): Do not induce vomiting. Immediately give two glasses of water or milk. Contact a physician immediately.
Inhalation (breathing): Remove patient from contaminated area. If breathing has stopped, give artificial respiration, then oxygen if needed. Contact a physician immediately.
Skin contact: Remove contaminated clothing and wash contaminated skin with large amounts of water. If irritation persists, contact a physician.
Eye contact: Flush eyes with water for at least 15 minutes. Contact a physician immediately.

Spill or leak procedures

Steps to be taken if material is released or spilled:
Eliminate ignition sources. Avoid eye or skin contact. Place leaking containers in well-ventilated area. If fire potential exists, blanket spill with foam or use water spray to disperse vapors. Contain spill to minimize contaminated area and facilitate salvage or disposal. To clean up spill, flush area sparingly with water or use an absorbent. Avoid runoff into storm sewers and ditches which lead to natural waterways. Call the National Response Center (800-424-8802) if spill is equal to or greater than reportable quantity (5000 lb/day) under "Superfund". All clean-up and disposal should be carried out in accordance with federal, state and local regulations. If required, state and local authorities should be notified.

Waste disposal method:
This product when spilled or disposed is a hazardous solid waste as defined in Resource Conservation Recovery Act regulations (40CFR261). Preferred method is incineration or biological treatment in federal/state approved facility.

Special protection information

Respiratory protection:
Use full-face NIOSH-approved organic vapor cartridge or canister respirator within use limitations of these devices; in all other situations, use self-contained breathing apparatus (SCBA).

Ventilation
Local exhaust: Recommended when appropriate to control employee exposure.
Mechanical (general): Not recommended as the sole means of controlling employee exposure.

Protective gloves:
Neoprene or rubber.

Eye protection:
Chemical safety goggles.

Other protective equipment:
For operations where spills or splashing can occur, use impervious body covering and boots. A safety shower and eye bath should be available.

Special precautions

Precautions to be taken in handling and storing:
Store in a cool, well-ventilated area. Keep away from heat, sparks and flame. Keep containers closed. Use spark-resistant tools. When transferring follow proper grounding procedures. Use with adequate ventilation. Avoid breathing vapor. Avoid contact with eyes, skin and clothing. Wash thoroughly with soap and water after handling. Wash contaminated clothing thoroughly before re-use. Discard contaminated leather clothing.

Hoechst Celanese
Chemical Group
P.O. Box 569320
Dallas, Texas 75356-9320 / 214-689-4000

INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

S-337

NOTE: NO REPRESENTATION IS MADE AS TO THE ACCURACY OF THE INFORMATION HEREIN. SEE PAGE 7 FOR CONDITIONS UNDER WHICH DATA ARE FURNISHED.

5.9%

Trade Name and Synonyms
70309 TOLUENE

Manufacturer's Name
Texaco Chemical Company

Emergency Telephone No.
(409) 722-8381

Address
4800 Fournace Place P.O. Box 430 Bellaire, TX 77401

Chemical Name and/or Family or Description
Aromatic Hydrocarbon

THIS PRODUCT IS CLASSIFIED AS:
X HAZARDOUS BY DEFINITION NO.(S) 1,2,5
____ NOT HAZARDOUS:
____ ON ATTACHED EXPLANATION SHEETS

WARNING STATEMENT:
WARNING! FLAMMABLE
VAPOR MAY BE HARMFUL
MAY CAUSE IRRITATION TO EYES

OCCUPATIONAL CONTROL PROCEDURES

Protective Equipment (Type)

Eyes: Chemical type goggles or face shield optional.

Skin: Exposed employes should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water, and laundering or dry cleaning soiled work clothing at least weekly.

Inhalation: Supplied air respiratory protection for cleaning large spills or upon entry into tanks, vessels, or other confined spaces.

Ventilation: Local exhaust ventilation recommended

Permissible Concentrations:

Air: 100 ppm averaged over an 8 hour exposure (ACGIH 1987-88).
200 ppm OSHA PEL.

EMERGENCY AND FIRST AID PROCEDURES

First Aid

Eyes: Flush with water for fifteen minutes.

Skin: Wash exposed areas with soap and water.

Ingestion: Do NOT induce vomiting. Aspiration of the fluid can cause serious lung injury, i.e. chemical pneumonitis. CALL A DOCTOR IMMEDIATELY.

Inhalation: Should symptoms noted under physiological effects occur, remove to fresh air. If not breathing, apply artificial respiration.

Other Instructions: None.

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

PHYSIOLOGICAL EFFECTS:

Code No. 70309

Effects of Exposure

Acute:

Eyes: Believed to cause slight-moderate eye irritation.

Skin: Believed to be slightly irritating with possible redness, edema or drying of the skin. May cause dermatitis on prolonged or repeated contact.

Respiratory System: Fatigue, weakness, headache, dizziness, vomiting. At higher concentrations, confusion and CNS depression.

Chronic: Prolonged exposure to high concentrations may produce loss of appetite, nose bleeds, and liver, kidney and neural dysfunction.

Other: -See additional comments pg. 6

Sensitization Properties:

Skin: Yes ___ No ___ Unknown X Respiratory: Yes ___ No ___ Unknown X

Median Lethal Dose (LD_{50} LC_{50})(Species)

Oral LD50 (rat)=7.53 ml/kg; practically non-toxic

Inhalation LC50 (rat)= 8000 ppm, 4 hrs.

Dermal LD50 (rabbit) = 14.0 g/kg; practically non-toxic

Other N. D.

Irritation Index, Estimation of Irritation (Species)

Skin Believed to be 0.5-3.0/8.0 (rabbit); slightly irritating

Eyes Believed to be 15-25/110 (rabbit): slightly irritating

Symptoms of Exposure See above and additional comments page 6.

FIRE PROTECTION INFORMATION

Ignition Temp.°F. 896 Flash Point °F. (Method) 40 F (TCC)

Flammable Limits (%) Lower 1.4 Upper 7.6

Products Evolved When Subjected to Heat or Combustion:

Carbon monoxide and carbon dioxide may be formed on burning in limited air supply.

Recommended Fire Extinguishing Agents And Special Procedures:

According to the National Fire Protection Association Guide 325M, use dry chemical, foam or carbon dioxide. Water may be ineffective on the flames, but water should be used to keep fire-exposed containers cool. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for the persons attempting to stop the leak.

Unusual or Explosive Hazards:

Vapors heavier than air, may travel, be ignited at remote locations and flash back. Explosive air-vapors mixtures may occur.

N.D. - Not Determined N.A. - Not Applicable

< - Less Than > - Greater Than

ENVIRONMENTAL PROTECTION

Code No. 70309

Waste Disposal Method:
Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may change classification to non-hazardous or hazardous for reasons other than, or in addition to ignitability. (See Remarks for Waste Classification.)

Procedures in Case of Breakage or Leakage: (Transportation Spills Call CHEMTREC (800) 424-9300)
Eliminate all ignition sources including internal combustion engines and power tools. Ventilate area. Avoid breathing vapor. Use SCBA or supplied-air mask for lg spills or in confined areas. Contain spill. Remove with inert absorbant. Avoid contact with eyes.

Remarks:
Waste Classification: Product (as presently constituted) has the RCRA characteristic of ignitability and if discarded in its purchased form would have the hazardous waste number D001.

PRECAUTIONS

WARNING! FLAMMABLE
VAPOR MAY BE HARMFUL
MAY CAUSE IRRITATION TO EYES

Keep away from heat, sparks and flame. Avoid breathing vapor Keep container closed. Avoid contact with eyes. Use only in well-ventilated locations. Avoid prolonged or repeated contact with skin. Keep head away from container when opening or dispensing. Wash thoroughly after handling.

Requirements for Transportation, Handling and Storage:
Transport, handle and store in accordance with OSHA Regulation 1910.106 and and applicable DOT regulations.

DOT Proper Shipping Name: Toluene
DOT Hazard Class (if applicable): Flammable liquid UN 1294 RQ

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (°F) 230 Vapor Pressure 36mm @ 86 F (mmHg)

Specific Gravity 0.870 (H_2O=1) Vapor Density 3.1 (Air=1)

Appearance and Odor clear liquid, aromatic type odor

pH of undiluted product N.A. Solubility insol.

Percent Volatile by Volume 100 Evaporation 4.5 ( )=1

Viscosity N.D. Other -

Hazardous Polymerizations _____ Occur X Do not occur

The Material Reacts Violently With: (If others is checked below, see additional comments on page 6 for futher details)

Air	Water	Heat	Strong Oxidizers	Others	None of These
			X		

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

COMPOSITION

Code No. 70309

Chemical/Common Name	CAS No.	Exposure Limit	Range in %
*Toluene	108883	100ppm TWA ACGIH 200ppm TWA OSHA	100.00
*Benzene	71432	10ppm TWA ACGIH 1 ppm TWA OSHA 5 ppm STEL OSHA	0.01 - 0.09

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

SARA TITLE III

I. Title III Section 302/304 Extremely Hazardous Substance

Component	CAS No.	%	RQ (Lbs)	TPQ (Lbs)
NONE				

II. CERCLA Section 102(a) Hazardous Substance

Component	CAS No.	%	RQ (Lbs)
Toluene	108883	100.00	1,000
Benzene	71432	0.01-0.09	1,000

III. Title III Section 311 Hazard Categorization

Acute	Chronic	Fire	Pressure	Reactive	Not Applicable
X	X	X			

IV. Title III Section 313 Toxic Chemicals

Component	CAS No.	%
Toluene	108883	100.00

PRODUCT SHIPPING LABEL | Code No. 70309

70309 TOLUENE

WARNING! FLAMMABLE
VAPOR MAY BE HARMFUL
MAY CAUSE IRRITATION TO EYES

Keep away from heat, sparks and flame. Avoid breathing vapor Keep container closed. Avoid contact with eyes. Use only in well-ventilated locations. Avoid prolonged or repeated contact with skin. Keep head away from container when opening or dispensing. Wash thoroughly after handling.

In case of contact, flush eyes with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a doctor If swallowed, DO NOT induce vomitting. Call a doctor.

In case of fire use water spray, foam, dry chemical or CO2.

Chemical/Common Name	CAS No.	Range in %
*Toluene	108883	100.00
*Benzene	71432	0.01 - 0.09

*Hazardous according to OSHA (1910.1200) or one or more state Right-To-Know lists.

HMIS
Health : 2 Reactivity : 0
Flammability: 3 Special : -

DOT Proper Shipping Name: Toluene
DOT Hazardous Class : Flammable liquid UN 1294 RQ

CAUTION: Misuse of empty containers can be hazardous. Empty containers can be hazardous if used to store toxic, flammable, or reactive materials. Cutting or welding of empty containers might cause fire, explosion or toxic fumes from residues. Do not pressurize or expose to open flame or heat. Keep container closed and drum bungs in place.

HEALTH EMERGENCY TELEPHONE: (914) 831-3400 (EXT. 204)

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650

For Additional Information Concerning:

Fuels/Lubricants/Antifreezes
call (914) 831-3400 (EXT.204)
Chemicals
call (512) 459-6543
Transportation Spills
call CHEMTREC (800) 424-9300

ADDITIONAL COMMENTS

Code No. 70309

TEXACO INTENDS TO COMPLY FULLY WITH PROVISIONS OF THE TOXIC SUBSTANCES CONTROL ACT
STATE OF MICHIGAN CRITICAL MATERIALS ACT (REVISED 1987)
No critical materials present.

This product may produce or potentiate neurotoxic symptoms when used in conjunction with other organic solvents. Symptoms of neurotoxicity may include tingling and numbness of the extremties.
Product contains Benzene. Benzene has been associated with anemia and leukemia in humans and anemia, lymphoma and other cancers in laboratory animals.
Ames Mutagenicity Assay - Negative In vitro mouse lymphoma assay - Negative In vivo rat bone marrow cytogenetics assay - Negative: 0.025 ml/kg, 0.082 ml/kg, 0.247 ml/kg intraperitoneal injection 5 exposures, 24 hrs. apart.
Dominant lethal assay - Negative: 100 ppm, 400 ppm by inhalation 6 hrs./day, 5 days/week, 8 weeks.
Teratogenesis in rat - Negative: 100 ppm, 400 ppm by inhalation days 6 through 15 of gestation.
Neurotoxicity - no exposure related neuropathological effects
Reproductive potential - two generation assay 100 ppm, 500 ppm, 2,000 ppm. Significant growth inhibition in offspring noted only at 2,000 ppm. No effects seen at lower doses. No teratogenic effects seen at any dose level including 2,000 ppm.

By F. E. Bentley Title Coordinator of Product Safety

Date 05-12-88 ☐ New ☒ Revised, Supersedes 04-22-88

N.D. - Not Determined N.A. - Not Applicable
< - Less Than > - Greater Than

THE INFORMATION CONTAINED HEREIN IS BELIEVED TO BE ACCURATE. IT IS PROVIDED INDEPENDENTLY OF ANY SALE OF THE PRODUCT AS PART OF TEXACO'S PRODUCT SAFETY PROGRAM. IT IS NOT INTENDED TO CONSTITUTE PERFORMANCE INFORMATION CONCERNING THE PRODUCT. NO EXPRESS WARRANTY, OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE IS MADE WITH RESPECT TO THE PRODUCT OR THE INFORMATION CONTAINED HEREIN. DATA SHEETS ARE AVAILABLE FOR ALL TEXACO PRODUCTS. YOU ARE URGED TO OBTAIN DATA SHEETS FOR ALL TEXACO PRODUCTS YOU BUY, PROCESS, USE OR DISTRIBUTE AND YOU ARE ENCOURAGED AND REQUESTED TO ADVISE THOSE WHO MAY COME IN CONTACT WITH SUCH PRODUCTS OF THE INFORMATION CONTAINED HEREIN.

EXPLANATION OF THE INDUSTRIAL HYGIENE, TOXICOLOGY, AND MATERIAL SAFETY DATA SHEET

PRODUCT INFORMATION

Trade Name and Synonyms

Refer to the code number and name under which the product is marketed and the common commercial name of the product.

Manufacturer's Name and Address Self explanatory.

Chemical Name and/or Family or Description

Refer to chemical, generic, or descriptive name of single elements and compounds.

For purposes of this form, a product is defined as hazardous if it possesses one or more of the following characteristics: (1) has a flash-point below 200 degrees Fahrenheit, closed cup or subject to spontaneous heating; (2) has a threshold limit value as established by the American Conference of Governmental Industrial Hygenists and/or the Occupational Safety and Health Administration (with exception to petroleum oil mist). (3) a single dose oral LD50 below 500 mg/kg; (4) causes burns to the skin in the short-term exposure or is systemically toxic by skin contact; (5) has been demonstrated to be a skin or eye irritant or causes respiratory irritation; (6) may cause skin or respiratory sensitization; (7) has teratogenic, mutagenic or other toxic effects; (8) may cause asphyxia or pneumoconiosis; (9) in the course of normal operations may produce dusts, gases, fumes, vapor, mist, or smoke which have one or more of the above characteristics; (10) contains a component which may be carcinogenic according to NTP (National Toxicology Program), IARC (International Agency for Research on Cancer), OSHA (Occupational Safety and Health Administration), EPA (Environmental Protection Agency) and/or NCI (National Cancer Institute.); (11) has a median LC50 (RATS) in air of 200 ppm or less by volume of gas or vapor or 2.0 mg/l or less of mist, fume or dust when administered by continuous inhalation for one hour; (12) is a hazard as identified in the Product Shipping Label on page 5.

OCCUPATIONAL CONTROL PROCEDURES

(Consult your Industrial Hygienist or Occupational Health Specialist.)

Protective Equipment

Type of protective equiment that is necessary for the safe handling and use of this product.

Ventilation

Normal means adequate to maintain permissible concentrations.
Ventilation: type, i.e. local exhaust, mechanical, etc.

Permissible Concentrations

Indicates worker exposure limits, such as the Threshold Limit Value (TLV) as established by the American Conference of Governmental Industrial Hygienists or standards, promulgated by the Occupational Safety and Health Administration (e.g., PEL).

TLV-Time Weighted Average (TWA) is the concentration in air averaged over an 8 hour daily exposure.

TLV-Ceiling (C) is the ceiling limit on concentration that should not be exceeded during any part of the working day.

"Skin" Notation (ACGIH) indicates that dermal absorption can contribute to overall exposure following direct contact or exposure to airborne material.

Permissible Exposure Level (PEL) is the time weighted concentration in air averaged over an 8 hour daily exposure.

EMERGENCY AND FIRST AID PROCEDURES

Administer first aid and emergency procedures in case of eye and/or skin contact, ingestion and inhalation.

PHYSIOLOGICAL EFFECTS

Acute Exposures (Eye, Skin, Respiratory System)

Refers to the most common effects that would be expected to occur from direct contact with the product.

Chronic

Refers to the effects that are most likely to occur from repeated or prolonged exposure.

Sensitizer

Means a substance which will cause on or in normal living tissue, through an allergic or photodynamic process, a hypersensitivity which becomes evident on reapplication of, or exposure to, the same substance.

Median Lethal Dose or Concentration (LD50,LC50)

Refers to that dose or concentration of the material which will produce death in 50 per cent of the animals. For inhalation, exposure time is indicated.

Irritation Index

Refers to an empirical score (Draize Method) for eye and skin irritation when tested by the method described. If numbers are not available, an estimated score indicates whether or not the material is an irritant.

FIRE PROTECTION INFORMATION

Ignition Temperature

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite and burn continuously for 5 seconds.

Flash Point (Method used)

Refers to the temperature in degrees Fahrenheit, at which a liquid will give off enough flammable vapor to ignite.

Flammable Limits

Refers to the range of gas or vapor concentration (percent by volume in air) which will burn or explode if an ignition source is present. Lower means the lower flammable limit and upper means the upper flammable limit given in percent.

Products Evolved When Subjected to Heat or Combustion

The products evolved when this material is subjected to heat or combustion. Includes temperature at which oxidation or other forms of degradation occurs.

Recommended Fire Extinguishing Agents and Special Procedures

Specifies the fire fighting agents that should be used to extinguish fires. If unusual fire hazards are involved or special procedures indicated, this is specified.

Unsusual Fire or Explosive Hazards

Specifies hazards to personnel in case of fire, explosive danger.

ENVIRONMENTAL PROTECTION

Specifies how this product may be disposed.

Indicates precautions necessary in the event that leakage or breakage occurs. Included are (a) clean-up procedures, (b) personal protective equipment if necessary, (c) hazards that may be created, i.e. fire, explosion, etc.

PRECAUTIONS

Label that is required or recommended.

Requirements for Transportation, Handling and Storage

Specifies handling and storage procedures. Gives ICC, DOT, or other regulations related to safety and health for transportation.

CHEMICAL AND PHYSICAL PROPERTIES

Boiling Point (or Range)

In degrees Fahrenheit or Celsius Boiling Point at 760 mmHg.

Vapor Pressure

Pressure exerted when a solid or liquid is in equilibrium with its own vapor.

Specific Gravity

The ratio of the density of the product to the density of water.

Vapor Density

The ratio of the density of the vapor at saturation concentration (20 degrees Celsius or 68 degrees Fahrenheit) to the density of air at 760 mmHg.

Appearance and Odor

Refers to the general characterization of the material, e.g. powder, colorless liquid, aromatic odor, etc.

pH

Refers to the degree of acidity or basicity of the material in a specific concentration.

pH1-5 - STRONGLY ACIDIC
pH5-7 - WEAKLY ACIDIC
pH7-9 - WEAKLY BASIC
pH9-14 - STRONGLY BASIC

Solubility

Refers to the solubility of a material by weight in water at room temperature. The term negligible, less than 0.1 %; slight, 0.1 to 1%; moderate, 1 to 10%; appreciable, 10% or greater. Gives solubility in organic solvents where appropriate.

Percent Volatile By Volume

Refers to the amount volatilized at 20 degrees Celsius or 68 degrees Fahrenheit when allowed to evaporate.

Evaporation

Gives the rate of evaporation compared to a standard

Viscosity

Measure of flow characteristics in Kinematic viscosity in Centistokes.

Hazardous Polymerization

Hazardous polymerization is that reaction which takes place at a rate which produces large amounts of energy. Indicates whether it may or may not occur and under what storage conditions.

Does the Material React Violently

Indicates whether the material will react violently, releasing large amounts of energy when exposed under conditions listed.

Composition

Components of the product as required by OSHA (1910.1200) and one or more state Right to Know laws.

Texaco Inc.
2000 Westchester Avenue
White Plains, New York 10650
Phone (914 [illegible]-3400 (Beacon

S-366 1,10%

MATERIAL SAFETY DATA SHEET

EASTMAN CHEMICAL PRODUCTS, INC.
Kingsport, Tennessee 37662

For Health Hazard Information, call: (615) 229-6094, 8am-5pm (Eastern), Mon.-Fri.
(615) 229-4374 at all other times

For other information, call: (615) 229-3339 Date of Preparation: 02-21-84

Approved by U. S. Department of Labor: Essentially Similar to OSHA-20

SECTION I. IDENTIFICATION

- Product Name: **Isobutyl Alcohol**
- Synonyms: Isobutanol; 2-Methyl-1-propanol
- Formula: $CH_3CH(CH_3)CH_2OH$
- Molecular Weight: 74.12

SECTION II. PRODUCT AND COMPONENT HAZARD DATA

A. COMPONENT:	Approx. Percent	TLV**	CAS Reg. No.
Isobutyl Alcohol	100	50	78-83-1

**See Section VI-A for additional information on exposure limits.

B. PRECAUTIONARY LABEL STATEMENTS:

WARNING! FLAMMABLE
CAUSES EYE IRRITATION
HARMFUL IF INHALED

Keep away from heat, sparks, and flame.
Avoid contact with eyes.
Avoid breathing vapor.
Keep container closed.
Use with adequate ventilation.
Wash thoroughly after handling.

FIRST AID: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. If inhaled, remove to fresh air. Treat symptomatically. Call a physician if symptoms persist.

IN CASE OF FIRE: Use water spray, dry chemical, "alcohol" foam or CO_2. Water may be ineffective in fighting the fire. Use water spray to keep fire-exposed containers cool.

IN CASE OF SPILL: Eliminate all ignition sources. Flush spill area with water spray. Prevent runoff from entering drains, sewers, and streams.

Since emptied packages retain product residue, follow label warnings even after package is emptied.

SECTION III. PHYSICAL DATA

- Appearance and Odor: Colorless liquid, sweet odor.
- Boiling Point: 108°C (226°F)
- Melting Point: -108°C (-162.4°F)
- Specific Gravity (H_2O = 1): 0.803 @ 20°/20°C
- Vapor Pressure: 9 mm Hg at 20°C
- Percent Volatile by Volume: >99
- Vapor Density (Air = 1): 2.55
- Evaporation Rate (n-butyl acetate = 1): 0.6
- Solubility in Water: 9.5%; moderate

SECTION IV. FIRE AND EXPLOSION HAZARD DATA

- Flash Point: 29°C (85°F)
  Method Used: TCC
- Autoignition Temperature: 416°C (780°F); ASTM D-2155
- Flammable Limits: LEL 1.7% at 50.5°C UEL 10.6% at 94°C
- Extinguishing Agent: Water Spray, Dry Chemical, CO_2, "Alcohol" Foam
- Special Fire-Fighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Water may be ineffective for fire fighting. Use water spray to keep fire-exposed containers cool.
- Unusual Fire and Explosion Hazards: Flammable liquid (see Section VIII). Vapors are heavier than air and may travel considerable distance to a source of ignition and flash back.

SECTION V. REACTIVITY DATA

- Stability: Stable.
- Incompatibility: Oxidizing materials can cause a vigorous reaction.
- Hazardous Decomposition Products: As with any other organic material, combustion will produce carbon dioxide and probably carbon monoxide.
- Hazardous Polymerization: Will not occur.

SECTION VI. TOXICITY AND HEALTH

A. EXPOSURE LIMITS

- OSHA Permissible Exposure Limit (PEL): 100 ppm.
- Threshold Limit Value (TLV): 50 ppm-TWA, 75 ppm-STEL, ACGIH, 1983-84.
- A NIOSH industrial hygiene analytical method is available. (1)

B. VENTILATION

General: Recommend at least ten air changes per hour for good general room ventilation.

Local Exhaust: If needed to control mist or vapor. See Section VI-A for detailed information on exposure limits.

C. SKIN AND EYE PROTECTION

Safety glasses should be worn in any type of industrial operation.

D. OTHER CONTROL MEASURES

An eye bath and washing facilities should be available. Wash thoroughly after handling.

SECTION VIII. SPECIAL STORAGE AND HANDLING PRECAUTIONS

Material is classified as a Flammable Liquid. Keep away from heat, sparks, and flame. Keep container closed. Use with adequate ventilation.

Since emptied packages retain product residue, follow label warnings even after package is emptied.

SECTION IX. SPILL, LEAK, AND DISPOSAL PRACTICES

Steps to be Taken in Case Material is Released or Spilled: Eliminate all ignition sources. Small spills may be collected with absorbent materials. For large spills, flush area with water spray. Prevent runoff from entering drains, sewers, or streams.

Waste Disposal Method: Incineration. Observe all federal, state and local laws concerning health and environment.

SECTION X. ENVIRONMENTAL EFFECTS DATA

A. SUMMARY: This product has been tested for environmental effects. Some published data (7,8,9) are available for this product, and these data have been used to provide the following estimate of environmental impact.

This product has a high biological oxygen demand, and it is expected to cause significant oxygen depletion in aquatic systems. It has a low potential to affect aquatic organisms. It is readily biodegradable and is not likely to bioconcentrate. If diluted with a large amount of water, this product released into the environment is not expected to have a significant impact.

B. OXYGEN DEMAND DATA

- COD: 100% of ThOD or 2.6 g/g (7)
- BOD_5: 64% of ThOD (7)

C. ACUTE AQUATIC EFFECTS

- 96-h LC_{50}; Water flea: 1220 mg/L (8)
- 48-h LC_{50}; Golden orfe (minnow): 1520 mg/L; 1750 mg/L (9)*

*Results of the same test carried out in two different laboratories.

SECTION XI. TRANSPORTATION

DOT Hazard Classification: Flammable liquid
Flashpoint: See Section IV.

SECTION XII. REFERENCES

1. NIOSH Manual of Analytical Methods, 2nd Edition, Volume 2. Issued by the National Institute for Occupational Safety and Health. Washington, U. S. Government Printing Office, 1977, Method S64.

2. H. C. Hodge and J. H. Sterner. Tabulation of toxicity classes. Am. Ind. Hyg. Assoc. Q. 1949; 10:93-96.

3. Unpublished data, Health, Safety, and Human Factors Laboratory, Eastman Kodak Co., Rochester, New York.

4. H. F. Smyth, Jr., C. P. Carpenter, C. S. Weil, and U. C. Pozzani. Range-finding toxicity data. Arch. Ind. Hyg. Occup. Med. 1954; 10:61-68.

5. G. D. Clayton and F. E. Clayton, Editors. Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition, Volume 2C. New York, Wiley-Interscience, 1982, pp. 4579-4582.

6. F. A. Patty, Editor. Industrial Hygiene and Toxicology, 2nd Revised Edition, Volume II. New York, Wiley-Interscience, 1963, pp. 1447-1449.

7. K. Verschueren. Handbook of Environmental Data on Organic Chemicals. New York, Van Nostrand Reinhold Company, p. 397.

8. V. G. Bringmann and R. Kuehn. Results of the damaging effect of water pollutants on Daphnia magna. Z.Wasser Abwasser Forsch. 1977; 10(5):161-166 (in German).

9. I. Juhnke and D. Luedemann. Results of the study of 200 chemical commpounds on acute fish toxicity using the golden orfe test. Z. Wasser Abwasser Forsch. 1978; 11(5):161-164 (in German).

S-546

MATERIAL SAFETY DATA SHEET

Shell

97002 (1-81)

7.3%

MSDS NUMBER ▶ 7,740-5

SECTION I	NAME
PRODUCT	▶ SHELL CYCLO-SOL® 53 Solvent (EOR)
CHEMICAL/ SYNONYMS	▶ -- AROMATIC 100
CHEMICAL FAMILY	▶ Aromatic Hydrocarbon Solvent
SHELL CODE ▶ 83420	C.A.S. NUMBER ▶ 64742-95-6

24 HOUR EMERGENCY ASSISTANCE

SHELL 713-473-9461
CHEMTREC 800-424-9300

HAZARD RATING
LEAST 0 ▶ SLIGHT 1 ▶ MODERATE 2 ▶ HIGH 3 ▶ EXTREME 4

HEALTH	2
FIRE	2
REACTIVITY	0

SECTION II — INGREDIENTS

COMPOSITION	%	TOXICITY DATA
CYCLO-SOL 53	100	Oral LD_{50} (rat) - 4.7g/kg Inhalation LC_{50} (rat) = >3670ppm (8 hrs)
Aromatics	99.4	
Paraffins plus Naphthenes	0.6	
Olefins	<0.1	

SECTION III — HEALTH INFORMATION

Acute Toxicity: Overexposure can lead to central nervous system depression producing such effects as headache, dizziness, nausea, and loss of consciousness.

Eye Contact: Short-term liquid or vapor contact may result in slight eye irritation. Prolonged and repeated contact may be more irritating.

Skin Contact: Prolonged and repeated liquid contact can cause defatting and drying of the skin which may result in skin irritation and dermatitis.

Inhalation: High concentrations or prolonged exposure to lower concentrations may be slightly irritating to mucous membranes.

Ingestion: Liquid ingestion may result in vomiting; aspiration (breathing) of vomitus into the lungs must be avoided as even small quantities in the lungs may result in chemical pneumonitis and pulmonary edema/hemorrhage.

SECTION IV — OCCUPATIONAL EXPOSURE LIMITS

None established.

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with water for 15 minutes while holding eyelids open. Get medical attention.

SKIN CONTACT: Wash with soap and water. Remove contaminated clothing and do not reuse until laundered. If persistent irritation occurs, get medical attention.

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

INGESTION: Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention.

NOTE TO THE PHYSICIAN: If more than 2.0 ml per kg has been ingested and vomiting has not occurred, emesis should be induced with supervision. Keep victim's head below hips to prevent aspiration. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before emesis, gastric lavage using a cuffed endotracheal tube should be considered.

SECTION VI PHYSICAL DATA

BOILING POINT (°F) ▶ 315-346	MELTING POINT (°F) ▶ --	VAPOR PRESSURE (mmHg) 10.3@100°F
SPECIFIC GRAVITY (H_2O=1) ▶ 0.87	% VOLATILE BY VOLUME ▶ --	VAPOR DENSITY (AIR=1) ▶ 4.3
SOLUBILITY IN WATER ▶ Negligible	EVAPORATION RATE (BUTYL ACETATE=1) ▶ 0.12	

APPEARANCE AND ODOR

Light colored liquid. Aromatic odor.

SECTION VII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD USED	FLAMMABLE LIMITS/% VOLUME IN AIR ▶ LOWER	UPPER
16°F (TCC)	1	7

EXTINGUISHING MEDIA

Use water fog, foam, dry chemical or CO_2. Do not use a direct stream of water. Product will float and can be reignited on surface of water.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

Do not enter confined fire space without proper protective equipment including a NIOSH approved self-contained breathing apparatus. Cool fire-exposed containers with water.

In the case of large fires, also cool surrounding equipment and structures with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION VIII REACTIVITY

STABILITY ▶ [ ] UNSTABLE [X] STABLE

HAZARDOUS POLYMERIZATION ▶ [ ] MAY OCCUR [X] WILL NOT OCCUR

CONDITIONS AND MATERIALS TO AVOID

Avoid heat, sparks, open flames and contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and unidentified organic compounds may be formed during combustion.

SECTION IX EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR 1910.134, use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors.

PROTECTIVE CLOTHING

Wear impervious gloves and protective clothing as required to prevent skin contact. Wear chemical goggles to prevent eye contact.

ADDITIONAL PROTECTIVE MEASURES

Use explosion-proof ventilation as required to control vapor concentrations.

SECTION X ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES

Caution. Combustible.

Large spills: Eliminate potential sources of ignition. Wear appropriate respirator and other protective clothing. Shut off source of leak only if safe to do so. Dike and contain. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand or other suitable material; place in leak-proof drums for proper disposal. Flush area with water to remove trace residue; dispose of flush solutions in drums.
Small spills: take up with an absorbent material and place in leak-proof drums for disposal.

WASTE DISPOSAL

Dispose of in a facility approved under RCRA regulations for hazardous waste (See Sec. XIII). Containers must be leak-proof and tightly sealed.

ENVIRONMENTAL HAZARDS

This product is an "oil" under the Clean Water Act. KEEP OUT OF SURFACE WATERS AND ANY WATER COURSES OR SEWERS ENTERING OR LEADING TO SURFACE WATERS. See Section XIII.

SECTION XI SPECIAL PRECAUTIONS

Caution. Combustible.
Store away from strong oxidizing agents in a cool, dry place with adequate ventilation. Keep away from heat and open flames. Keep containers tightly sealed..

ash with soap and water before eating, drinking, smoking or using oilet facilities. Launder contaminated clothing before reuse.

SECTION XII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION ▶

☐ FLAMMABLE LIQUID	☒ COMBUSTIBLE LIQUID	☐ OXIDIZING MATERIAL	☐ NON-FLAMMABLE GAS
☐ FLAMMABLE SOLID	☐ POISON,CLASS A	☐ CORROSIVE MATERIAL	☐ NOT HAZARDOUS BY D.O.T. REGULATIONS
☐ FLAMMABLE GAS	☐ POISON,CLASS B	☐ IRRITATING MATERIAL	☐ OTHER-Specify below

D.O.T. PROPER SHIPPING NAME

Petroleum Naphtha

OTHER REQUIREMENTS

D.O.T. Identification Number = Un1255. Guide Sheet 27. Not regulated by D.O.T. in containers with a capacity of less than 100 gallons.

SECTION XIII OTHER REGULATORY CONTROLS

EPA,FDA,OSHA,USDA,CPSC,etc.

EPA - Clean Water Act (CWA)
This product is classified as an oil under Section 311 of the Clean Water Act. Spills entering (a) surface waters or (b) any watercourses or sewers entering/leading to surface waters that cause a sheen MUST be reported to the National Response Center, 800-424-8802.

EPA - Resource Conservation and Recovery Act Regulations (RCRA)
As produced, this material is a product and not a waste. If discarded or intended to be discarded as is, it is an ignitable hazardous waste as defined in RCRA (40 CFR 261.21). The EPA hazardous waste number is D001.

BE SAFE

READ OUR PRODUCT SAFETY INFORMATION ... AND PASS IT ON

[PRODUCT LIABILITY LAW REQUIRES IT]

John P Lepori
Manager
SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
OIL AND CHEMICAL PRODUCTS
P.O. BOX 4320
HOUSTON,TEXAS 77210

DATE PREPARED

November 13, 1981

004106 BUTYL ACETATE NORMAL U G PAGE: 1

ACCEPTED BY O.S.H.A. AS ESSENTIALLY SIMILIAR TO O.S.H.A. FORM 20

24-HOUR EMERGENCY TELEPHONE: 606-324-1133 (LOCATED AT ASHLAND, KENTUCKY)

****

ASHLAND PRODUCT NAME: BUTYL ACETATE NORMAL U G

STEELCOTE MFG CO
3418 GRATIOT ST
ST LOUIS MO 63103

05 50 042 0542580-
DATA SHEET NO: 0017188-001
LATEST REVISION DATE: 08/28-78229
PRODUCT: 3670100
INVOICE: 683881
INVOICE DATE: 05/08/84
TO: SAME

3,8%

ATTN: PURCHASING/SAFETY DEPT.

SECTION I-PRODUCT IDENTIFICATION

GENERAL OR GENERIC ID: ESTER

HAZARD CLASSIFICATION: (03) FLAMMABLE LIQUID (173.115)

SECTION II-HAZARDOUS COMPONENTS

INGREDIENT	PERCENT	PEL	TLV	*
N- BUTYL ACETATE	>60	150	150 PPM	

SECTION III-PHYSICAL DATA

PROPERTY	REFINEMENT	MEASUREMENT
INITIAL BOILING POINT	FOR PRODUCT	260.00 DEG F (126.66 DEG C) @ 760.00 MMHG
VAPOR PRESSURE	FOR PRODUCT	10.00 MMHG @ 68.00 DEG F (20.00 DEG C)
VAPOR DENSITY	UNAVAILABLE	
SPECIFIC GRAVITY		.880 - .883 @ 68.00 DEG F (20.00 DEG C)
PERCENT VOLATILES		100.00%
EVAPORATION RATE		SLOWER THAN ETHER

SECTION IV-FIRE AND EXPLOSION DATA

FLASH POINT(TOC) 99.00 DEG F
(37.22 DEG C)

EXPLOSIVE LIMIT (PRODUCT) LOWER - 1.7%

EXTINGUISHING MEDIA: REGULAR FOAM OR CARBON DIOXIDE OR DRY CHEMICAL

HAZARDOUS DECOMPOSITION PRODUCTS: MAY FORM TOXIC MATERIALS:, CARBON DIOXIDE AND CARBON MONOXIDE, VARIOUS HYDROCARBONS, ETC.

SPECIAL FIREFIGHTING PROCEDURES: SELF-CONTAINED BREATHING APPARATUS WITH A FULL FACEPIECE OPERATED IN PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

UNUSUAL FIRE & EXPLOSION HAZARDS: VAPORS ARE HEAVIER THAN AIR AND MAY TRAVEL ALONG THE GROUND OR MAY BE MOVED BY VENTILATION AND IGNITED BY PILOT LIGHTS, OTHER FLAMES, SPARKS, HEATERS, SMOKING, ELECTRIC MOTORS, STATIC DISCHARGE, OR OTHER IGNITION SOURCES AT LOCATIONS DISTANT FROM MATERIAL HANDLING POINT.
NEVER USE WELDING OR CUTTING TORCH ON OR NEAR DRUM (EVEN EMPTY) BECAUSE PRODUCT (EVEN JUST RESIDUE) CAN IGNITE EXPLOSIVELY.

SECTION V-HEALTH HAZARD DATA

PERMISSIBLE EXPOSURE LEVEL 150 PPM

THRESHOLD LIMIT VALUE 150 PPM

EFFECTS OF OVEREXPOSURE: FOR PRODUCT

EYES - CAN CAUSE SEVERE IRRITATION, REDNESS, TEARING, BLURRED VISION.
SKIN - PROLONGED OR REPEATED CONTACT CAN CAUSE MODERATE IRRITATION, DEFATTING, DERMATITIS.
BREATHING - EXCESSIVE INHALATION OF VAPORS CAN CAUSE NASAL IRRITATION, DIZZINESS, WEAKNESS, FATIGUE, NAUSEA, HEADACHE, POSSIBLE UNCONSCIOUSNESS, AND EVEN ASPHYXIATION.
SWALLOWING - CAN CAUSE GASTROINTESTINAL IRRITATION, NAUSEA, VOMITING, AND DIARRHEA.

FIRST AID:

IF ON SKIN: THOROUGHLY WASH EXPOSED AREA WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. LAUNDER CONTAMINATED CLOTHING BEFORE RE-USE.

SECTION V-HEALTH HAZARD DATA (CONTINUED)

IF IN EYES: FLUSH WITH LARGE AMOUNTS OF WATER, LIFTING UPPER AND LOWER LIDS OCCASIONALLY. GET MEDICAL ATTENTION.

IF SWALLOWED: GIVE TWO GLASSES OF WATER, INDUCE VOMITING IMMEDIATELY BY STICKING FINGER DOWN THROAT. CALL A PHYSICIAN. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF BREATHED: IF AFFECTED, REMOVE INDIVIDUAL TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF BREATHING HAS STOPPED, GIVE ARTIFICIAL RESPIRATION. KEEP PERSON WARM, QUIET, AND GET MEDICAL ATTENTION.

SECTION VI-REACTIVITY DATA

HAZARDOUS POLYMERIZATION: CANNOT OCCUR

STABILITY: STABLE

INCOMPATABILITY: AVOID CONTACT WITH:, STRONG ALKALIES., STRONG MINERAL ACIDS., STRONG OXIDIZING AGENTS.

SECTION VII-SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

SMALL SPILL: ABSORB LIQUID ON PAPER, VERMICULITE, FLOOR ABSORBENT, OR OTHER ABSORBENT MATERIAL AND TRANSFER TO HOOD.

LARGE SPILL: ELIMINATE ALL IGNITION SOURCES (FLARES, FLAMES, INCLUDING PILOT LIGHTS, ELECTRICAL SPARKS). PERSONS NOT WEARING PROTECTIVE EQUIPMENT SHOULD BE EXCLUDED FROM AREA OF SPILL UNTIL CLEAN-UP HAS BEEN COMPLETED. STOP SPILL AT SOURCE, DIKE AREA OF SPILL TO PREVENT SPREADING, PUMP LIQUID TO SALVAGE TANK. REMAINING LIQUID MAY BE TAKEN UP ON SAND, CLAY, EARTH, FLOOR ABSORBENT OR OTHER ABSORBENT MATERIAL AND SHOVELED INTO CONTAINERS.

WASTE DISPOSAL METHOD:

SMALL SPILL: ALLOW VOLATILE PORTION TO EVAPORATE IN HOOD. ALLOW SUFFICIENT TIME FOR VAPORS TO COMPLETELY CLEAR HOOD DUCT WORK. DISPOSE OF REMAINING MATERIAL IN ACCORDANCE WITH APPLICABLE REGULATIONS.

LARGE SPILL: DESTROY BY LIQUID INCINERATION IN ACCORDANCE WITH APPLICABLE REGULATIONS.
CONTAMINATED ABSORBENT MAY BE DEPOSITED IN A LANDFILL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.

SECTION VIII-PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: IF TLV OF THE PRODUCT OR ANY COMPONENT IS EXCEEDED, A NIOSH/MSHA JOINTLY APPROVED AIR SUPPLIED RESPIRATOR IS ADVISED IN ABSENCE OF PROPER ENVIRONMENTAL CONTROL. OSHA REGULATIONS ALSO PERMIT OTHER NIOSH/MSHA RESPIRATORS UNDER SPECIFIED CONDITIONS. (SEE YOUR SAFETY EQUIPMENT SUPPLIER). ENGINEERING OR ADMINISTRATIVE CONTROLS SHOULD BE IMPLEMENTED TO REDUCE EXPOSURE.

VENTILATION: PROVIDE SUFFICIENT MECHANICAL (GENERAL AND/OR LOCAL EXHAUST) VENTILATION TO MAINTAIN EXPOSURE BELOW TLV(S).

PROTECTIVE GLOVES: WEAR RESISTANT GLOVES SUCH AS:, NEOPRENE

EYE PROTECTION: CHEMICAL SPLASH GOGGLES IN COMPLIANCE WITH OSHA REGULATIONS ARE ADVISED; HOWEVER, OSHA REGULATIONS ALSO PERMIT OTHER TYPE SAFETY GLASSES. (CONSULT YOUR SAFETY EQUIPMENT SUPPLIER)

OTHER PROTECTIVE EQUIPMENT: TO PREVENT REPEATED OR PROLONGED SKIN CONTACT, WEAR IMPERVIOUS CLOTHING AND BOOTS.

SECTION IX-SPECIAL PRECAUTIONS OR OTHER COMMENTS

CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTIED. SINCE EMPTIED CONTAINERS RETAIN PRODUCT RESIDUES (VAPOR, LIQUD, AND/OR SOLID), ALL HAZARD PRECAUTIONS GIVEN IN THIS DATA SHEET MUST BE OBSERVED.

OVEREXPOSURE TO MATERIAL HAS APPARENTLY BEEN FOUND TO CAUSE THE FOLLOWING EFFECTS IN LABORATORY ANIMALS:, LIVER ABNORMALITIES, KIDNEY DAMAGE, LUNG DAMAGE, BRAIN DAMAGE

THE INFORMATION ACCUMULATED HEREIN IS BELIEVED TO BE ACCURATE BUT IS NOT WARRANTED TO BE WHETHER ORIGINATING WITH ASHLAND OR NOT. RECIPIENTS ARE ADVISED TO CONFIRM IN ADVANCE OF NEED THAT THE INFORMATION IS CURRENT, APPLICABLE, AND SUITABLE TO THEIR CIRCUMSTANCES.

5-347 54.2%

MATERIAL SAFETY DATA SHEET

Shell

97002 (1-81)

MSDS NUMBER ▶ 7,610-3 PAGE 1 OF

SECTION I	NAME	
PRODUCT ▶	Shell Xylene	
CHEMICAL/ SYNONYMS ▶	Xylol; Dimethyl Benzene; Methyl Toluene	
CHEMICAL FAMILY ▶	Aromatic Hydrocarbon	
SHELL CODE ▶ 83391	C.A.S. NUMBER ▶ --	

24 HOUR EMERGENCY ASSISTANCE

SHELL 713-473-9461
CHEMTREC 800-424-9300

HAZARD RATING
LEAST 0 ▶ SLIGHT 1 ▶ MODERATE 2 ▶ HIGH 3 ▶ EXTREME 4

HEALTH	2
FIRE	3
REACTIVITY	0

SECTION II INGREDIENTS

COMPOSITION	%	TOXICITY DATA
Shell Xylene	100	Oral LD_{50} (rat)=>5.2ml/kg Dermal LD_{50} (rabbit)=>3.95ml/kg Inhalation LC_{50} (rat)=6,350ppm (4 hr)
Xylenes; a mixture of ortho-, meta and para-xylenes	80	
Ethylbenzene	20	
Benzene . . . typically <10ppm		
*formerly 63390		

JAN 16 1989

SECTION III HEALTH INFORMATION

Acute Toxicity: Overexposure can lead to central nervous system depression producing such effects as headache, dizziness, nausea and loss of consciousness.

Eye Contact: Short-term liquid or vapor contact may result in slight eye irritation. Prolonged and repeated contact may to be more irritating.

Skin Contact: Prolonged and repeated liquid contact can cause defatting and drying of the skin which may result in skin irritation and dermatitis.

Inhalation: High concentrations or prolonged exposure to lower concentrations may be slightly irritating to mucous membranes.

Ingestion: Liquid ingestion may result in vomiting; aspiration (breathing in) of liquid into the lungs must be avoided as liquid contact with the lungs can result in chemical pneumonitis and pulmonary edema/ hemorrhage.

SECTION IV OCCUPATIONAL EXPOSURE LIMITS

Xylene:
OSHA-PEL/TWA = 100ppm
ACGIH-TLV/TWA = 100ppm (skin)
-TLV/STEL = 150ppm (skin)

Ethylbenzene:
OSHA-PEL/TWA = 100ppm
ACGIH-TLV/TWA = 100ppm
-TLV/STEL = 125ppm

SECTION V EMERGENCY AND FIRST AID PROCEDURES

EYE CONTACT: Flush with water. If persistent irritation occurs, get medical attention.

SKIN CONTACT: Wash with soap and water. Remove contaminated clothing and do not reuse until laundered. If persistent irritation occurs, get medical attention.

INHALATION: Remove victim to fresh air and provide oxygen if breathing is difficult. Give artificial respiration if not breathing. Get medical attention.

INGESTION: DO NOT INDUCE VOMITING even though vomiting may occur. If vomiting occurs, keep head below hips to prevent aspiration of liquid into the lungs. Get medical attention.

NOTE TO PHYSICIAN: Depending upon the amount ingested and retained, as well as the toxicity of the product, gastric lavage should be considered. Keep patient's head below hips to prevent pulmonary aspiration. If comatose, a cuffed endotracheal tube will prevent aspiration. Consult a poison control center.

SECTION VI PHYSICAL DATA

BOILING POINT (°F) ▶ 281 - 285	MELTING POINT (°F) ▶ --	VAPOR PRESSURE (mmHg) 6 @ 68°F
SPECIFIC GRAVITY (H_2O=1) ▶ .87	% VOLATILE BY VOLUME ▶ 100	VAPOR DENSITY (AIR=1) ▶ 3.2
SOLUBILITY IN WATER ▶ Negligible	EVAPORATION RATE (BUTYL ACETATE=1) ▶ 0.6	

APPEARANCE AND ODOR

Colorless liquid. Aromatic odor.

SECTION VII FIRE AND EXPLOSION HAZARDS

FLASH POINT AND METHOD USED	FLAMMABLE LIMITS/% VOLUME IN AIR ▶ LOWER	UPPER
81°F (TCC)	1.0	7.0

EXTINGUISHING MEDIA

Use water spray or fog, foam, dry chemical or CO_2. Do not use a direct water stream. Avoid accumulation of water as product will float.

SPECIAL FIRE FIGHTING PROCEDURES AND PRECAUTIONS

Do not enter confined fire space without proper protective equipment including a NIOSH approved self-contained breathing apparatus. Cool fire-exposed containers with water.

UNUSUAL FIRE AND EXPLOSION HAZARDS

SECTION VIII REACTIVITY

STABILITY ▶ [ ] UNSTABLE [X] STABLE

HAZARDOUS POLYMERIZATION ▶ [ ] MAY OCCUR [X] WILL NOT OCCU

CONDITIONS AND MATERIALS TO AVOID

Avoid heat, sparks, open flames and oxidizing materials.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and unidentified organics may be formed during combustion.

SECTION IX EMPLOYEE PROTECTION

RESPIRATORY PROTECTION

Use a NIOSH-approved respirator as required to prevent overexposure. In accord with 29 CFR 1910.134, use either an atmosphere-supplying respirator or an air-purifying respirator for organic vapors.

PROTECTIVE CLOTHING

Wear gloves and other protective clothing as required to minimize skin contact. Wear safety glasses or goggles to prevent eye contact.

ADDITIONAL PROTECTIVE MEASURES

Use explosion-proof ventilation as required to control vapor concentrations.

SECTION X ENVIRONMENTAL PROTECTION

SPILL OR LEAK PROCEDURES

Caution! High fire and explosion hazard when spilled. Do not use spark-generating equipment. Water fog may be used to suppress vapor cloud but avoid contact of large amounts of water with actual spill area.
Large spills: Eliminate all sources of ignition. Evacuate the area of all nonessential personnel. Wear appropriate respirator and other protective clothing. Shut off source of leak only if safe to do so. Dike and contain. Remove with vacuum trucks or pump to storage/salvage vessels. Soak up residue with a noncombustible absorbent such as clay or vermiculite and place in drums for disposal. Flush area with water to remove trace residue and dispose of flush solutions in drums.
Small spills: Soak up with noncombustible absorbent and place in drums. Flush area with water, collect flush solutions for disposal.

WASTE DISPOSAL

Dispose of in an approved waste disposal facility in compliance with all federal and state regulations. Drums must be tightly sealed and labeled properly.

ENVIRONMENTAL HAZARDS

The xylene in this product is designated as a hazardous substance under the Clean Water Act. KEEP OUT OF SURFACE WATERS OR SEWERS ENTERING OR LEADING TO SURFACE WATERS. (See Section XIII).

SECTION XI SPECIAL PRECAUTIONS

re away from oxidizing materials in a cool, dry place with adequate ex-sion-proof ventilation. Keep away from heat, sparks and open flames. ound equipment to prevent accumulation of static charge. If pouring or nsferring materials, containers must be electrically interconnected grounded. Keep containers tightly sealed.

sh up with soap and water before eating, drinking, smoking or using let facilities. Launder contaminated clothing before reuse. Destroy ntaminated leather items including shoes that cannot be decontaminated.

SECTION XII TRANSPORTATION REQUIREMENTS

DEPARTMENT OF TRANSPORTATION CLASSIFICATION

[X] FLAMMABLE LIQUID	[ ] COMBUSTIBLE LIQUID	[ ] OXIDIZING MATERIAL	[ ] NON-FLAMMABLE GAS
[ ] FLAMMABLE SOLID	[ ] POISON,CLASS A	[ ] CORROSIVE MATERIAL	[ ] NOT HAZARDOUS BY D.O.T. REGULATIONS
[ ] FLAMMABLE GAS	[ ] POISON,CLASS B	[ ] IRRITATING MATERIAL	[ ] OTHER-Specify below

D.O.T. PROPER SHIPPING NAME

ylene

OTHER REQUIREMENTS

D. T. Identification Number = UN 1307. Guide 27.

SECTION XIII OTHER REGULATORY CONTROLS

EPA,OSHA,USDA,CPSC,etc.

A - Clean Water Act (CWA)
is product is classified as a hazardous substance under Section 311 of e Clean Water Act. Spills entering (a) surface waters or (b) any tercourses or sewers entering/leading to surface waters MUST be reported mediately to the National Response Center, 800-424-8802. The reportable antity for xylene is 1000 lbs.

A - Resource Conservation and Recovery Act (RCRA)
is product has been designated by the EPA (RCRA 40 CFR 261.33) as a zardous waste if it is spilled, discarded or intended to be discarded as . The EPA hazardous waste number for xylene is U239.

BE SAFE
READ OUR PRODUCT SAFETY INFORMATION ...AND PASS IT ON
(PRODUCT LIABILITY LAW REQUIRES IT)

John P Lepori
Manager
SHELL OIL COMPANY
PRODUCT SAFETY AND COMPLIANCE
OIL AND CHEMICAL PRODUCTS
P.O. BOX 4320
HOUSTON,TEXAS 77210

DATE PREPARED
August 18, 1981

ATTACHMENT 2
STEELCOTE MANUFACTURING COMPANY
PHOTOGRAPHS

ATTACHMENT 2
PHOTOGRAPHS

LOCATION:	**STEELCOTE MANUFACTURING CO. FACILITY**
DATE:	**JUNE 9, 1989**
PHOTOGRAPHER:	**GREG UETRECHT, JEG INSPECTOR**
FILM:	**KODAK ASA 200**
CAMERA:	**NIKON 35MM**
JACOBS FILE:	**05C01700**
WITNESS:	**LAURIE SMITH**

PHOTOGRAPH 1

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: **Second floor, unlabeled drum collecting clean-up solvents**

Time: **0858**

Open drum

PHOTOGRAPH 2

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: 100 gallon tank where coating or paint is mixed

Time: 0901

PHOTOGRAPH 3

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: Cleaned 100 gallon tank by solvents

Time: 0901

PHOTOGRAPH 4

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: **Ball Mill**

Time: **0904**

PHOTOGRAPH 5

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject:	**Solvent wash drums**
Note:	**Liquid sitting on top**
Time:	**0904**

PHOTOGRAPH 6

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject:	**F-Solvent drums unlabeled in still area**
Note:	**Some open drums**
Time:	**0942**

PHOTOGRAPH 7

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject:	**Unlabeled F-Solvent drums in still area**
Note:	**Open drums**
Time:	**0942**

PHOTOGRAPH 8

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: **Unlabeled F-Solvent drums in still area**

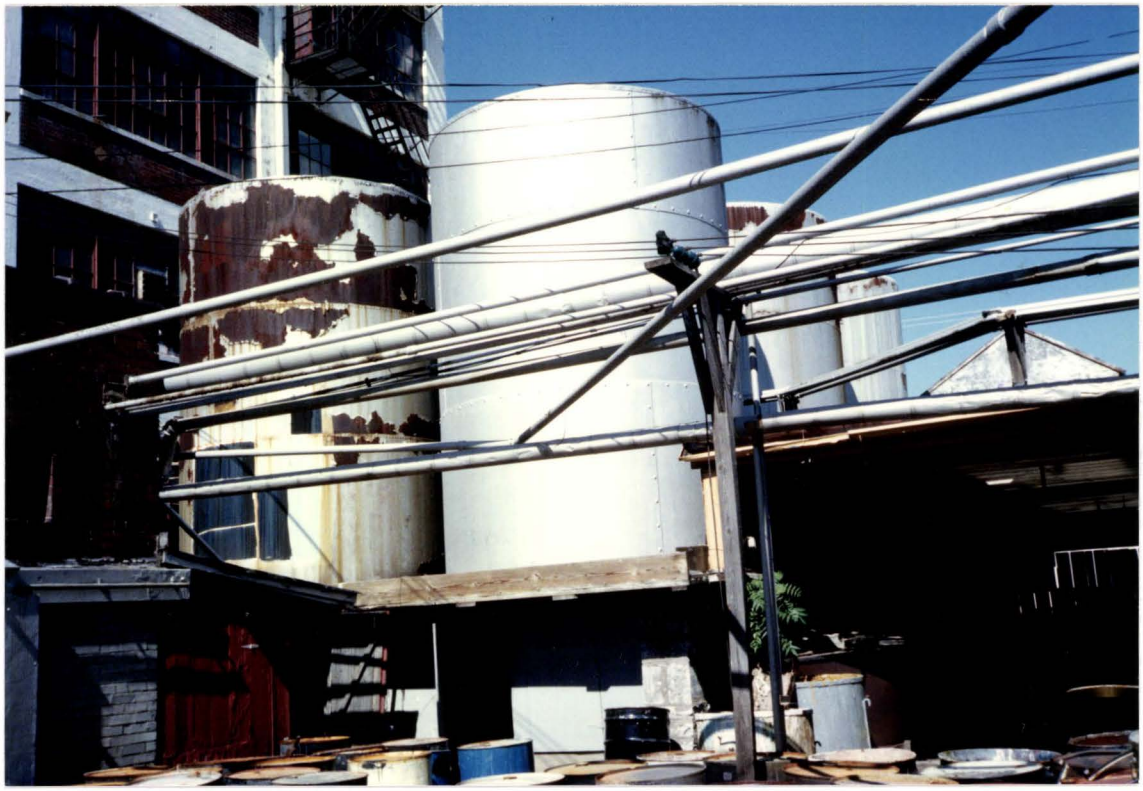
Note: **0942**

PHOTOGRAPH 9

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: **Three full F-Solvent drums. Only label is "Dirty Solvent"**

Time: **0944**



PHOTOGRAPH 10

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: Above ground storage tanks presently used for test coatings

Time: 0944

PHOTOGRAPH 11

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: **PRI Solvent Distillation Unit**

Time: **0947**

PHOTOGRAPH 12

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject:	**Wastes being stored for distillation. No labels on drums**
NOTE:	**Drums two and three are open and Drum one has a label**
Time:	**0948**

PHOTOGRAPH 13

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: Wastes being stored for distillation. No labels on drums

Time: 0948

PHOTOGRAPH 14

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject: **Aged inventory and returned product**

Time: **0955**

PHOTOGRAPH 15

OFFICIAL PHOTOGRAPH
JACOBS ENGINEERING GROUP INC.

Subject:	**Aged inventory and returned product**
Note:	**Poor coordination of materials and staining on the floor**
Time:	**0956**

ATTACHMENT 3
LAND DISPOSAL RESTRICTIONS CHECKLIST

9

Facility Name: STEELCASTE
EPA Id Number: MOD006275036

LAND DISPOSAL RESTRICTION CHECKLIST FOR FY 1989

Form A - Restricted Waste Determination

Note: This form must be completed during all RCRA Compliance Evaluation Inspections (CEIs). Additional forms (B through F) may be required depending on types of wastes generated or handled.

All checks are based on Mr. Moore's answers.

Section I. Wastes restricted on November 7, 1986 (F-solvents and Dioxins)

Check each box that applies (see Appendix A):

☒	F001	☒	F004	☐	F021	☐	F026
☒	F002	☑	F005	☐	F022	☐	F027
☑	F003[1]	☒	F020	☐	F023	☐	F028

☒ None of the wastes listed above are handled by the generator. Complete Section II of this form.

☑ One or more of the wastes listed above are handled by the generator. Complete Form C - Manifesting Restricted Wastes and Form D - Testing and Management of F-solvents and Dioxins.

[1] Applicable only if waste is ignitable.

Section II. Wastes restricted on July 8, 1987 (California List)

Check each box that applies:

☒ Liquid hazardous wastes or liquids associated with solids or sludges containing free cyanides at concentration greater than 1000 mg/L.

☐ Liquid hazardous wastes or liquids associated with solids or sludges containing one or more of the following concentrations:

☒ Arsenic or compounds containing arsenic greater than 500 mg/L;

☒ Cadmium or compounds containing cadmium greater than 100 mg/L;

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form A - Restricted Waste Determination (cont'd)

☐ Chromium or compounds containing chromium greater than 500 mg/L;

☐ Lead or compounds containing lead greater than 500 mg/L;

☐ Mercury or compounds containing mercury greater than 20 mg/L;

☐ Nickel or compounds containing nickel greater than 134 mg/L;

☐ Selenium or compounds containing selenium greater than 100 mg/L; or

☐ Thallium or compounds containing Thallium greater than 130 mg/L.

☐ Liquid hazardous wastes exhibiting a pH less than or equal to 2.0.

☒ Liquid hazardous wastes that also contain polychlorinated biphenols (PCBs) at concentrations between 50 to 500 mg/L. @26 mg/L and 2@ 7 mg/L

☐ Liquid or nonliquid hazardous waste containing halogenated organic compounds at concentrations greater than or equal to 1000 mg/Kg.

☑ None of the wastes listed above are handled by the generator. Complete Section III of this form.

☐ One or more of the wastes listed above are handled by the generator. Complete Form C - Manifesting Restricted Wastes and Form E - Testing and Management of California List Wastes.

Section III. Wastes restricted on August 8, 1988 (First Third List)

1. Hard Hammer Wastes (see Appendix B)

B. All others

☐ F006[1]	☐ K001	☐ K004[1]	☐ K008[1]
☐ K015	☐ K016	☐ K018	☐ K019
☐ K020	☐ K021[1]	☐ K022[1]	☐ K024
☐ K025[1]	☐ K030	☐ K036[1]	☐ K037

Facility Name: Steelcote
EPA Id Number: MOD006275032

Form A - Restricted Waste Determination (cont'd)

☐ K044	☐ K045	☐ K046[1]	☐ K047
☐ K048[2]	☐ K049[2]	☐ K050[2]	☐ K051[2]
☐ K052[2]	☐ K060[1]	☐ K061[1]	☐ K062
☐ K069[1]	☐ K071	☐ K083[1]	☐ K086[3]
☐ K087	☐ K099	☐ K100[1]	☐ K101[4]
☐ K102[4]	☐ K103	☐ K104	

1 Nonwastewaters only, wastewaters have been soft hammered.
2 National Capacity Extension through May, 1990.
3 Solvent-wash subcategory, other subcategories have been soft hammered.
4 All wastewaters and nonwastewaters with less than 1% total As, high As wastewaters have been soft hammered.

2. Soft Hammer Wastes (see Appendix C)

A. Wastewaters only

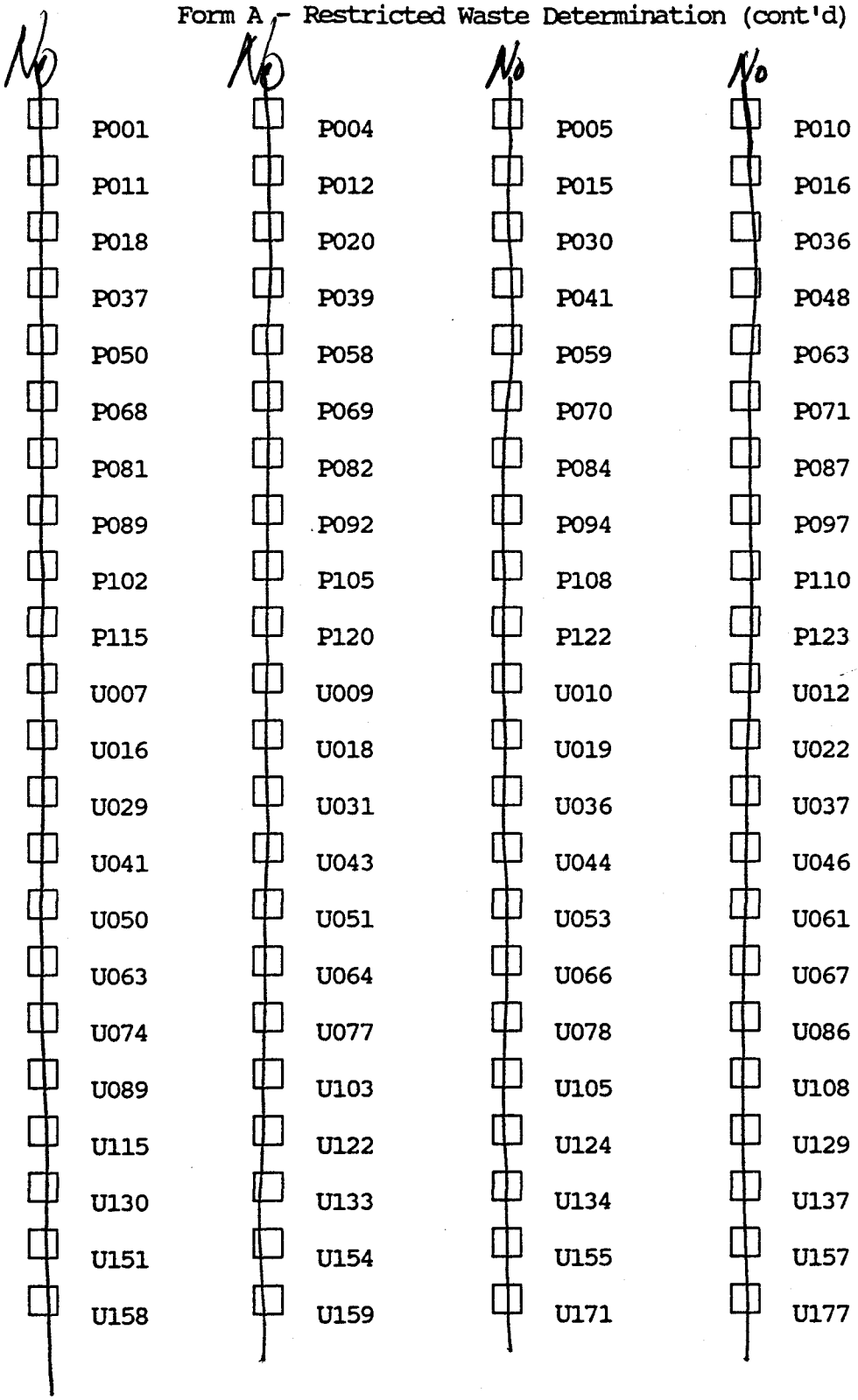
☐ F006	☐ K004	☐ K008	☐ K021
☐ K022	☐ K025	☐ K036	☐ K046
☐ K060	☐ K061	☐ K069	☐ K083
☐ K086	☐ K100	☐ K101	☐ K102

B. All others

☐ F007	☐ F008	☐ F009	☐ F019
☐ K011	☐ K013	☐ K014	☐ K017
☐ K031	☐ K035	☐ K036	☐ K069
☐ K073	☐ K083	☐ K084	☐ K085
☐ K086	☐ K101[1]	☐ K102[1]	☐ K106

Facility Name: Steelcote
EPA Id Number: MOD006275032

Form A - Restricted Waste Determination (cont'd)



Facility Name: Steelcote
EPA Id Number: MOD106275032

Form A - Restricted Waste Determination (cont'd)

No

- ☐ U180
- ☐ U200
- ☐ U219
- ☐ U226
- ☐ U238

No

- ☐ U185
- ☐ U209
- ☐ U220
- ☐ U227
- ☐ U248

No

- ☐ U188
- ☐ U210
- ☐ U221
- ☐ U228
- ☐ U249

No

- ☐ U192
- ☐ U211
- ☐ U223
- ☐ U237

[1] Nonwastewaters with greater than 1% As.

☑ **None of the wastes listed above are handled by the generator.** Complete Section VI of this form.

No ☐ **One or more of the wastes listed above are handled by the generator.** Complete Form C - Manifesting Restricted Wastes and Form F - Testing and Management of First Third List Wastes.

Section IV. Wastes restricted on June 8, 1989 (Second Third)

N.A.

Section V. Wastes restricted on May 8, 1990 (Last Third)

N.A.

Section VI. BDAT Treatability Group - Treatment Standards Identification.

1. Does the generator mix restricted wastes which have different treatment standards ? ___ Yes ✓ No

   If yes,

   A. Did the generator select the most stringent treatment standard ? ___ Yes N/A No

Inspector's Initials: BCH

Facility Name: Steelcote
EPA Id Number: MOD006275032

LAND DISPOSAL RESTRICTION CHECKLIST FOR FY 1989

Form B - Treatment, Storage and Disposal

Note: This form should be completed only if the generator or handler stores restricted wastes onsite for greater than 90 days or operates RCRA-regulated treatment or disposal units. Small quantity generators who accumulate restricted wastes for less than 180(270) days are exempt from the following requirements.

Section I. General facility standards

1. Has the facility's waste analysis plan been revised in accordance 264.13(b)(6) or 265.13(b)(6) to reflect requirements under 268.7 ? ✓ Yes ___ No

2. Has the facility obtained representative chemical and physical analysis of wastes and residues in accordance to 264.13 or 265.13 ? X Yes X No

* waste analysis plan is being developed.

if yes,

A. Chemical and physical analyses of F-solvents and Dioxins

i. Has testing included analyses for all F-solvent constituents ? ✓ Yes ___ No

ii. Were all F-solvent constituents analyzed by employing the Toxicity Characteristic Leaching Procedure (TCLP) ? ✓ Yes ___ No

B. Chemical and physical analyses of California List wastes N.A.

i. Were the following analyses conducted on California List wastes:

a. pH ? ___ Yes ___ No

b. Concentrations of PCBs ? ___ Yes ___ No

c. Concentration of Halogenated Organic Compounds ? ___ Yes ___ No

d. Heavy Metal concentration ? ___ Yes ___ No

e. Cyanide concentration ? ___ Yes ___ No

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form B - Treatment, Storage and Disposal (cont'd)

C. Chemical and physical analyses of First Third List Wastes

i. Has the facility tested wastes with established treatment standards (hard hammer wastes) ? ___ Yes ___ No

if yes,

a. List these wastes and the test procedures used to determine concentrations below:

3. Were these analyses conducted onsite or offsite ? off-site

A. If offsite, identify lab: Chemtech Lab. St. Louis, Mo

4. Describe the frequency of sampling restricted wastes below: Done by treatment facility upon receiving shipment from generator. WASTE !

Attach copy of most recent waste analysis. * Note: This is the reclaimed solvent, not waste analysis at facility, however waste analysis is under development at American Resource Recovery. Refer to Aug 16, 1988 letter which is most recent

Section II. Storage of Restricted Wastes

1. Have restricted wastes exceeding treatment standards been stored ? ✓ Yes ___ No

if yes, this far per Mr. Moores wishes !

A. Have all containers been clearly marked to identify contents and date(s) entering storage ? ___ Yes ✓ No

Completed

B. Do operating records track location, quantity, and dates that restricted wastes entered and were removed from storage ? ___ Yes ___ No

C. Do records agree with container labeling ? ___ Yes ___ No

D. Are restricted wastes stored for less than 1 year ? ___ Yes ___ No

E. Have tanks been emptied at least once per year, and do operating records show that volumes of restricted wastes removed from tanks at least equal tank volume ? ___ Yes ___ No

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form B - Treatment, Storage and Disposal (cont'd)

F. Have restricted wastes been stored for more than one year ? ___ Yes ___ No

i. If yes, can the owner/operator demonstrate that the purpose of such storage has been solely conducted for accumulating sufficient quantities of restricted wastes to facilitate proper recovery, treatment, or disposal ? ___ Yes ___ No

---

Section III. Storage or treatment in surface impoundments

1. Have restricted wastes exceeding treatment standards been placed in surface impoundments ? ___ Yes ___ No

A. If yes, have these wastes and their residues been removed at least annually ? ___ Yes ___ No

B. If no, skip the remainder of this section.

2. Have these wastes been placed for treatment ? ___ Yes ___ No

A. If yes, describe treatments processes below:

_____

_____

_____

3. Is the only recognizable "treatment" occurring in the impoundment either evaporation, dilution, or both ? ___ Yes ___ No

4. Did the facility submit a certification of compliance with minimum technology and groundwater monitoring requirements, and the waste analysis plan to the Agency ? ___ Yes ___ No

5. Have minimum technology requirements been met ? ___ Yes ___ No

A. If no, have waivers been granted for each restricted waste management unit ? ___ Yes ___ No

6. Have all 264/265 Subpart F groundwater monitoring requirements been met ? ___ Yes ___ No

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form B - Treatment, Storage and Disposal (cont'd)

7. Have representative samples of sludge and supernatant from applicable surface impoundments been tested adequately and in accordance with sampling frequency and analysis specified in the waste analysis plan ? ___ Yes ___ No

   A. Are test results maintained in the operating record ? ___ Yes ___ No

   B. Did hazardous waste residues (i.e. sludge or liquid) exceed treatment standards as specified in 268.41 ? ___ Yes ___ No

   C. Provide the frequency of analyses conducted on treatment residues below:

   _____

   _____

   _____

   D. Do operating records adequately document results of waste analyses performed in accordance with 268.41 ? ___ Yes ___ No

8. Has supernatant been determined to exceed treatment standards ? ___ Yes ___ No

   A. If yes, is annual throughput greater than surface impoundment volume ? ___ Yes ___ No

9. If residues were removed annually, have adequate precautions been taken to protect liners and do records indicate that inspections of liner integrity are performed ? ___ Yes ___ No

10. When removed, were solvent wastes managed subsequently in another surface impoundment ? ___ Yes ___ No

11. When removed, were wastes treated prior to disposal ? ___ Yes ___ No

   A. If yes, are waste residues treated onsite or offsite ? _____

   B. Describe management method below:

   _____

   _____

   _____

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form B - Treatment, Storage and Disposal (cont'd)

Section IV. RCRA-regulated Treatment (not including surface impoundments

1. Did the facility operate treatment facilities for restricted wastes ? ___ Yes ___ No

   If no, skip the rest of Section IV.

2. Describe processes for each restricted waste treated onsite:

   _____

   _____

   _____

3. Does the facility treat soft hammer wastes ? ___ Yes ___ No

   If yes,

   A. Is treatment occurring as described in the facility's certification/demonstration ? ___ Yes ___ No

   B. Did the treatment facility certify all soft hammer waste as per the facility's demonstration and maintain copies of all certifications ? ___ Yes ___ No

   C. Did the facility send a copy of the demonstration and certification to the receiving treatment, recovery, or storage facility ? ___ Yes ___ No

4. Does the treatment facility test the treatment residuals in accordance with an acceptible waste analysis plan ? ___ Yes ___ No

5. Do treatment residuals exceed treatment standards ? ___ Yes ___ No

   If yes,

   A. Describe processes used to handle those residuals ?

   _____

   _____

   _____

   B. Describe the frequency of testing of treatment residuals below:

   _____

   _____

   _____

6. Was dilution used as a substitute for treatment ? ___ Yes ___ No

Facility Name: Steelcote
EPA Id Number: MOD006275032

Form B - Treatment, Storage and Disposal (cont'd)

7. Are certifications and results of waste analyses kept in the operating record ? ___ Yes ___ No

If any treatment residuals were shipped offsite for further treatment or disposal, complete Form C - Manifesting Restricted Wastes.

Section V. Land Disposal

1. Were restricted wastes placed in land disposal units (i.e. surface impoundments, waste piles, wells, land treatment units, salt domes/beds, mines/caves, concrete vaults, or bunkers) for other than treatment purposes ? ___ Yes ___ No

2. Did the facility have appropriate notices or certifications from generators or treatment facilities in its operating record [268.7(a-b)] ? ___ Yes ___ No

3. Did the facility obtain waste analyses of restricted wastes to determine if such wastes were in compliance with applicable treatment standards [268.7(c)] ? ___ Yes ___ No

4. Were restricted wastes exceeding the applicable treatment standards or prohibition levels placed in land disposal units excluding national capacity variances ? ___ Yes ___ No

   If yes,

   A. Did the facility have an approved waiver based on "no migration" petition, approved case-by-case, capacity extension, or treatment standard variance ? ___ Yes ___ No

5. Were restricted wastes, subject to national or case-by-case capacity variances or extensions, disposed ? ___ Yes ___ No

   If yes,

   A. Were these wastes disposed of in a hazardous waste management unit that meets minimum technology requirements ? ___ Yes ___ No

6. Are adequate records of disposal maintained ? ___ Yes ___ No

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form B - Treatment, Storage and Disposal (cont'd)

7. If wastes subject to nationwide variances, case-by-case extensions, or no migration petitions were disposed, does the facility have notices and records of disposal ? ___ Yes ___ No

8. If the facility has a case-by-case extension, is there data available to verify that the facility is making progress as described in progress reports ? ___ Yes ___ No

9. If the facility is disposing of a soft hammer waste, are notices or certifications maintained onsite ? ___ Yes ___ No

   If yes,

   A. Could any of these wastes be classified as California List wastes ? ___ Yes ___ No

   B. Did the facility seek to verify whether these wastes are subject to all restrictions ? ___ Yes ___ No

Inspector's Initials: JCA

Facility Name: Steelcote
EPA Id Number: MOD006275036

LAND DISPOSAL RESTRICTION CHECKLIST FOR FY 1989

Form C - Manifesting Restricted Wastes

Note: This form should be completed only if the generator or handler ships restricted waste offsite for treatment or disposal. The following requirements may also apply to treatment facilities (including incinerators) which ship residues, still bottoms, or ash offsite for additional treatment or disposal.

---

1. If restricted wastes which exceed treatment standards, and are not subject to case-by-case extensions, "no migration" exemption, or nationwide variance, did the generator or handler provide the following information along with each hazardous waste manifest during shipment:

   A. Manifest document number ? ✓ Yes ___ No

   B. EPA waste identification code ? ✓ Yes ___ No

   C. Treatment standards for each restricted waste ? ___ Yes ✓ No

   D. Waste analysis data (if available) ? ✓ Yes ___ No

   E. All applicable restrictions ? ✓ Yes ___ No

Notice: Restricted wastes which exceed treatment standards may only be sent for treatment (including incineration). Such wastes are prohibited from land disposal, unless there is a variance or extension applicable to the waste.

2. Identify all offsite treatment facilities accepting wastes exceeding treatment standards:
   Refer to Manifest Copies as ATTACHMENTS

3. If restricted wastes do not exceed treatment standards, are subject to case-by-case extension, have a "no migration" exemption, or a nationwide variance, did the generator or handler provide the following information along with each hazardous waste manifest during shipment:

   A. Manifest document number ? N/A ___ Yes ___ No

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form C - Manifesting Restricted Wastes (cont'd)

B. EPA waste identification code ? ___ Yes ___ No

C. Treatment standards for each restricted waste ? ___ Yes ___ No

D. Waste analysis data (if available) ? ___ Yes ___ No

E. All applicable restrictions ? ___ Yes ___ No

F. Date the wastes are subject to restrictions ? ___ Yes ___ No

G. The following certification ? ___ Yes ___ No

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of imprisonment.

Notice: The above certification statement must be signed by an authorized representative of the facility.

4. Identify all offsite treatment or disposal facilities accepting wastes below treatment standards:

_____

_____

_____

5. If waste is subject to a nationwide variance (e.g. solvent-water mixtures less than 1%), extension or petition has the facility provided notice to disposers that waste is exempt from land disposal restrictions ? ___ Yes ___ No

6. Does the generator or handler keep records of all notifications or certifications for waste sent to offsite facilities <u>after</u> August 16, 1988 ? ___ Yes ✓ No

Inspector's Initials: GCU

Facility Name: Steelcote
EPA Id Number: MID 006 275 036

LAND DISPOSAL RESTRICTION CHECKLIST FOR FY 1989

Form D - Testing and Management of F-solvents and Dioxins

Note: This form should be completed only if the facility generates or handles F-solvents or Dioxin wastes regardless of concentrations.

---

1. Has the facility correctly determined the appropriate treatability group [268.41] for F-solvents generated or handled onsite (see Appendix A) ? ✓ Yes ___ No

2. Has the facility determined whether F-solvent wastes exceed treatment standards based on the following:

   A. Knowledge of process ? ✓ Yes ✓ No

      i. If facility employs knowledge of process, note adequacies or inadequacies in their methods below:
      Knowledge of raw chemical products used on-site and waste stream generated. Laboratory analyses & fingerprint from local LAB and available analysis upon request from treatment facility.

   B. Toxicity Characteristic Leaching Process (TCLP) ? ✓ Yes ~~✓ No~~ Soon* under current development

      i. If yes, provide the following information:

         a. Last test date: _____

         b. Frequency of testing: _____

         c. Indicate any problems with testing procedure below:

         _____

         _____

         _____

      ii. Attach test results to report.

      iii. Were wastes tested using TCLP when processes or wastestreams changed ? ___ Yes ___ No

      iv. Was testing done prior to dilution or solidification ? ___ Yes ___ No

   C. Other (specify): _____

3. Did F-solvent wastes exceed their applicable treatment standards upon generation [268.7(a)(2)] ? ✓ Yes ___ No

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form D - Testing and Management of F-solvents and Dioxins (cont'd)

4. Did the facility dilute the waste or treatment residuals as a substitute for adequate treatment [268.3] ? ___ Yes ✓ No

5. Were treatment residuals generated from 264/265 RCRA-exempt units or processes ? ___ Yes ✓ No

If yes,

A. List the type(s) of treatment and unit(s) below:

Note: If the residuals from a RCRA-exempt treatment unit are above the treatment standards, the owner/operator is considered a generator of restricted waste. The inspector should determine whether the generator requirements, particularly waste identification requirements, have been met for the treatment residuals.

6. Have F-solvents or dioxin wastes been stored for greater than 90 days ? ✓ Yes ___ No

If yes,

A. Is facility operating under interim status or final permit ? ~~x~~ ___ Yes ___ No

If the answer was yes for either 6 or 6A, complete Form B - Treatment, Storage and Disposal.

→ ** At this time in the inspection, ~~further~~ & CH the subject of TREATMENT, STORAGE, & Disposal (TSD) is unresolve and will need further clarification. Will call facility & EPA to arrange a meeting on this issue.

Inspector's Initials: CH

Facility Name: Steelcote
EPA Id Number: MOD006275036

LAND DISPOSAL RESTRICTION CHECKLIST FOR FY 1989

Form E - Testing and Management of California List Wastes

Note: This form should be completed only if the facility generates or handles California List wastes at the concentrations listed in Form A - Restricted Waste Determination.

---

1. Has the facility conducted any testing of restricted wastes to determine whether the concentrations qualify them as California Wastes ? ___ Yes ___ No

   If no,

   Has the facility retained records documenting that the waste is not restricted under the California List by knowledge of process ? ___ Yes ___ No

2. Has the Paint Filter Liquids Test (PFLT) been performed as described by SW-846 to determine whether California List wastes (except halogenated organic compounds) are in liquid form ? ___ Yes ___ No

3. If wastes have been determined to be in liquid form, were these wastes solidified using an absorbent ? ___ Yes ___ No

   A. If yes, note type of absorbent used: _____

   B. Indicate which wastes were solidified by aborbent below:

   Check each box that applies:

   ☐ Liquid hazardous wastes or liquids associated with solids or sludges containing free cyanides at concentration greater than 1000 mg/L.

   ☐ Liquid hazardous wastes or liquids associated with solids or sludges containing one or more of the following concentrations:

   - ☐ Arsenic or compounds containing arsenic greater than 500 mg/L;
   - ☐ Cadmium or compounds containing cadmium greater than 100 mg/L;
   - ☐ Chromium or compounds containing chromium greater than 500 mg/L;
   - ☐ Lead or compounds containing lead greater than 500 mg/L;

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form E - Testing and Management of California List Wastes (cont'd)

- ☐ Mercury or compounds containing mercury greater than 20 mg/L;
- ☐ Nickel or compounds containing nickel greater than 134 mg/L;
- ☐ Selenium or compounds containing selenium greater than 100 mg/L; or
- ☐ Thallium or compounds containing Thallium greater than 130 mg/L.

☐ Liquid hazardous wastes exhibiting a pH less than or equal to 2.0.

☐ Liquid hazardous wastes that also contain polychlorinated biphenols (PCBs) at concentrations between 50 to 500 mg/L.

☐ Liquid or nonliquid hazardous waste containing halogenated organic compounds at concentrations greater than or equal to 1000 mg/Kg.

4. Has the facility determined whether concentration levels of the analytes (not extracts or filtrates) equal or exceed prohibition levels or whether the pH of the wastes is less than or equal to 2.0 based on:

A. Knowledge of process ? ___ Yes ___ No

i. If facility employs knowledge of process, note adequacies or inadequacies in their methods below:

_____

_____

_____

B. Testing ? ___ Yes ___ No

i. Did the facility determine if concentration levels in PFLT extracts exceed cyanide or metal treatment standards ? ___ Yes ___ No

ii. List the test methods used: _____

iii. List constituents and respective concentration levels for wastes found to exceed prohibition levels below:

_____

_____

_____

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form E - Testing and Management of California List Wastes (cont'd)

5. Has the facility treated waste onsite or offsite: _____

A. If onsite, complete Form B - Treatment, Storage, and Disposal.

B. If offsite, complete Form C - Manifesting Restricted Wastes.

Inspector's Initials: _____

Facility Name: Steelcote
EPA Id Number: MOD006275036

LAND DISPOSAL RESTRICTION CHECKLIST FOR FY 1989

Form F - Testing and Management of "First Third" Wastes

Note: This form should be completed only if the facility generates or handles wastes restricted under the "First Third" list (August 17, 1988).

I. Hard Hammer Provisions

1. Has the facility correctly determined the appropriate treatability group for hard hammer wastes generated or handled onsite ? ___ Yes ___ No

2. Has the facility determined whether hard hammer wastes exceed treatment standards based on the following:

   A. Knowledge of process ? ___ Yes ___ No

      i. If facility employs knowledge of process, note adequacies or inadequacies in their methods below:

      _____

      _____

      _____

   B. Toxicity Characteristic Leaching Process (TCLP) ? ___ Yes ___ No

      i. If yes, provide the following information:

         a. Last test date: _____

         b. Frequency of testing: _____

         c. Indicate any problems with testing procedure below:

         _____

         _____

         _____

      ii. Attach test results to report.

      iii. Were wastes tested using TCLP when processes or wastestreams changed ? ___ Yes ___ No

      iv. Was testing done prior to dilution or solidification ? ___ Yes ___ No

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form F - Testing and Management of "First Third" Wastes

C. Other (specify): _____

3. Did the hard hammer wastes exceed their applicable treatment standards upon generation [268.7(a)(2)] ? ___ Yes ___ No

4. Is there any reason to believe that the facility may have diluted these wastes to change the applicable treatment standard (based on review if process operation, pipe routing, point of sampling, etc.) ? ___ Yes ___ No

5. Did the facility ascertain whether hard hammer wastes were appropriately assigned wastewater on non-wastewater designations (nonwastewaters are > 1% TOC and > 1% suspended solids) ? ___ Yes ___ No

6. Does the facility handle K061 wastes ? ___ Yes ___ No

If yes,

A. Were nonwastewaters appropriately classified in either the high or low zinc subcategories (> 15% Zn) ? ___ Yes ___ No

7. Does the facility handle K101 or K102 wastes ? ___ Yes ___ No

If yes,

A. Were nonwastewaters appropriately classified in either the high or low arsenic subcategories ? ___ Yes ___ No

8. Have hard hammer wastes been stored for greater than 90 days ? ___ Yes ___ No

If yes,

A. is facility operating under interim status or final permit ? ___ Yes ___ No

If the answer was yes for either 8 or 8A, complete Form B - Treatment, Storage and Disposal.

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form F - Testing and Management of "First Third" Wastes

II. Soft Hammer Provisions

1. Has the facility submitted demonstrations and certifications for each soft hammer waste destined for disposal in landfills or surface impoundments to the Regional Administrator prior to the shipment of the waste to the disposal facility ? ___ Yes ___ No

   If yes,

   i. Has the facility retained a copy of each demonstration onsite ? ___ Yes ___ No

   ii. Has the facility retained copies of all certifications sent to the disposal facility ? ___ Yes ___ No

2. Has the facility sent copies and kept copies of the following information with each shipment of soft hammer wastes:

   A. Manifest document number ? ___ Yes ___ No

   B. EPA waste identification code ? ___ Yes ___ No

   C. All applicable restrictions ? ___ Yes ___ No

   D. Waste analysis data (if available) ? ___ Yes ___ No

   E. Applicable certifications ? ___ Yes ___ No

3. Do facility records indicate that soft hammer wastes are destined for disposal in landfills or surface impoundments ? ___ Yes ___ No

   If yes,

   A. List the name of the waste(s) destined for disposal:

   _____
   _____
   _____

   B. Name the facility where the waste is destined:

   _____
   _____

Facility Name: Steelcote
EPA Id Number: MOD006275036

Form F - Testing and Management of "First Third" Wastes

4. Have soft hammer wastes been stored for greater than 90 days ? ___ Yes ___ No

A. If yes, is facility operating under interim status or final permit ? ___ Yes ___ No

If the answer was yes for either 4 or 4A, complete Form B - Treatment, Storage and Disposal.

Inspector's Initials: _____

ATTACHMENT 4
NOTICE OF VIOLATION, CONFIDENTIAL BUSINESS INFORMATION FORM
AND
RECEIPT FOR DOCUMENTS

of the Resource Conservation and Recovery Act (RCRA)

TO: Facility Name: Steelcote Manufacturing Co.
Address: 3418 Gratiot Street
St. Louis, MO 63103
EPA ID Number: MOD006275036 Date: 06/09/89

During an inspection just completed to determine compliance with the requirements of Subtitle C of RCRA and regulations promulgated pursuant thereto, the following violations were identified:

Citation	Description of Violation
268.7(a)(1)	Each manifest did not include notifications of the appropriate treatment standards
268.50 (a)(1) and (2)	Drums are unmarked and not labled for F003 and F005.

This notice is provided to call your attention to those areas of noncompliance at the earliest possible time. This notice does not constitute a compliance order (Administrative Civil Complaint) issued pursuant to Section 3008 of RCRA and may not be a complete listing of all violations which may be identified as a result of this inspection.

The Steelcote Mfg. Co. is hereby requested to submit in writing within 10 days of receipt of this notice a description of all corrective actions taken and/or a schedule for completion of necessary correction actions to be taken to: Robert Morby, Chief, RCRA Branch, U. S. Environmental Protection Agency, Region VII, 726 Minnesota Ave., Kansas City, Kansas, 66101. The corrective actions taken by Steelcote Mfg. Co. will be considered in subsequent enforcement follow-up. Should civil penalties be assessed, corrective action(s) will be considered in assessing the penalty amount.

If you have any questions on this Notice or wish to discuss your response, you may call Cynthia Hutchison (U. S. EPA) at 913/236-2888, or _____ (_____), at _____.

This Notice prepared by Greg C. Utterback Date: 6/9/89

The undersigned person hereby acknowledges that he/she has received a copy of this Notice and has read same.

Printed Name: James S. Moore Date: 6/9/89

Signature: James S. Moore

Title: Plant Manager

U.S. ENVIRONMENTAL PROTECTION AGENCY
RCRA INSPECTION
CONFIDENTIALITY NOTICE

Name and Address of Inspector(s)	Name and Address of Facility Steelcote Manufacturing	
Greg C. Uetrecht Laurie M. Smith	Owner, Operator, or Agent in Charge James Moore	
	Title Plant Manager	
	Address 3418 Gratiot St. St. Louis, Mo 63103	
Name of Individual to Whom Notice Given James Moore	Title Plant Manager	Date 06/09/89

It is possible that EPA will receive public requests for release of the information obtained during inspection of the facility above. Such requests will be handled by EPA in accordance with provisions of the Freedom of Information Act (FDIA), 5 U.S.C. 552; EPA regulations issued thereunder, 40 CFR Part 2; and the Resource Conservation and Recovery Act, Section 3007, as amended. EPA is required to make inspection data available in response to FOIA requests, unless the Administrator of the Agency determines that the data contains information entitled to confidential treatment.

Any or all of the information collected by EPA during the inspection may be claimed confidential, if it relates to trade secrets or commercial of financial matters that you consider to be confidential. If you make claims of confidentiality, EPA will disclose the information only to the extent, and by the means of the procedures set forth in the regulations (cited above) governing EPA's treatment of confidential information. Among other things, the regulations require that the EPA notify you in advance of publicly disclosing any information you have claimed and certified confidential.

To claim information confidential, you must certify that each claimed item meets all of the following criteria:

1. Your company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures.

2. The information is not, and has not been, reasonably obtainable without your company's consent by other persons (other than governmental bodies) by use of legitimate means (other than discovery based on a showing of special need in a judicial or quasi-judicial proceeding).

3. The information is not publicly available elsewhere.

4. Disclosure of the information would cause substantial harm to your company's competitive position.

At the completion of the inspection, you will be given a receipt for all documents, samples, and other materials collected. At that time you may make claims that some or all of the information is confidential and meets the four criteria listed above.

RCRA INSPECTION CONFIDENTIALITY NOTICE	Facility Stulcote Mfg. Co.

If you are not authorized by your company to make confidentiality claims, this notice will be sent by certified mail, along with the receipt for documents, samples, and other materials, to the Owner, Operator, or Agent in Charge of your firm, within two days of this date. That person must return a statement, specifying any information which should receive confidential treatment.

This statement from the Owner, Operator, or Agent in Charge should be addressed to:

Mr. David A. Wagoner
Director, Waste Management Division
United States Environmental Protection Agency
726 Minnesota Avenue
Kansas City, Kansas 66101

and mailed by registered, return-receipt requested mail with in seven (7) calendar days of receipt of this Notice.

Failure by your firm to submit a written request that information be treated as confidential, either at the completion of the inspection or by the Owner, Operator, or Agent in charge, within the seven-day period, will be treated by the EPA as a waiver by your company of any claims for confidentiality regarding the inspection data.

To be completed by the facility official receiving this Notice:

I have received and read this Notice.

Name JAMES S. MOORE

Title PLANT MANAGER

Signature James S. Moore

Date 6/9/89

If there is no one on the premises of the facility who is authorized to make business confidentiality claims for the firm, a copy of this Notice and other inspection materials will be sent to the Owner, Operator, or Agent in charge of the company. If there is another company official who should also receive this information, please designate below:

Name _____

Title _____

Address _____

_____

U.S. ENVIRONMENTAL PROTECTION AGENCY
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

REQUEST FOR CONFIDENTIAL TREATMENT

Name of Individual	Title Date
James S. Moore	Plant Manager 06/09/89
Firm Name	Firm Address
Stulcote Manufacturing Co.	3418 Gratiot St. St. Louis, MO 63103

Information for which Confidential Treatment is requested:

Acknowledgement of Claimant

The undersigned requests that confidential treatment of the information described be provided in accordance with provisions of the Freedom of Information Act (FOIA), 5U.S.C.552; EPA regulations issued thereunder, 40 CFR Part 2; and the Resource Conservation and Recovery Act (RCRA), Section 3007, as amended. The undersigned further acknowledges that he/she is authorized to make such claims for his/her firm.

The undersigned also certifies that each item described above meets all of the following criteria: (1) The company has taken measures to protect the confidentiality of the information, and it intends to continue to take such measures: (2) The information is not, and has not been, reasonably attainable without the company's consent by other persons (other than governmental bodies) by use of legitimate means (other than discovery based on a showing of special need in a judicial of quasi-judicial proceeding; (3) The information is not publicly available elsewhere; and (4) Disclosure of the information would cause substantial harm to the company's competitive position.

Signature (Owner, Operator, or Agent)	Title
James S. Moore	PLANT MANAGER
Name of Inspector Title	Inspector's Signature
Laurie M. Smith Industrial Hygienist	Laurie M. Smith

U.S. ENVIRONMENTAL PROTECTION AGENCY

RECEIPT FOR SAMPLES AND DOCUMENTS

Inspector(s) Name and Address	Firm Name and Address
Jacobs Engineering Group, Inc. TES IV Contractors to the U. S. EPA 10901 W. 84th TERRACE, SUITE 210 Lenexa, KS 66214	Steelcote Manufacturing Co. 3418 Gratiot Street St. Louis, MO 63103
	Name of Individual James S. Moore
	Title Plant Manager

Date Collected	Samples were:	
N/A	N/A ( ) Purchased	N/A ( ) Received no charge ( )Borrowed
Sample Numbers N/A		Amount paid for Samples N/A

Duplicate Samples Requested	Method of Payment
N/A ( ) Yes ( ) No	N/A ( ) Cash ( ) Voucher ( ) To be Billed

The documents and samples of chemical substances and/or mixtures described below were collected in connection with the administration and enforcement of the Resource Conservation and Recovery Act.

Receipt for the document(s) and/or Sample(s) described below is hereby acknowledged:

18 photographs
1 waste analysis dated 08/16/88
8 Material Safety Data Sheets
2 MDNR Hazardous Waste Manifests
Doc. Nos.: 011570017
0019
1 ARKansas Manifest Nos.: AR-280229
1 Indiana Manifest Nos: INA 0239265

Signature (Owner, Operator, or Agent	Title
James S. Moore	PLANT MANAGER

Name of Inspector	Title	Inspector's Signature
LAURIE M. SMITH	Industrial Hygienist	Laurie M. Smith